

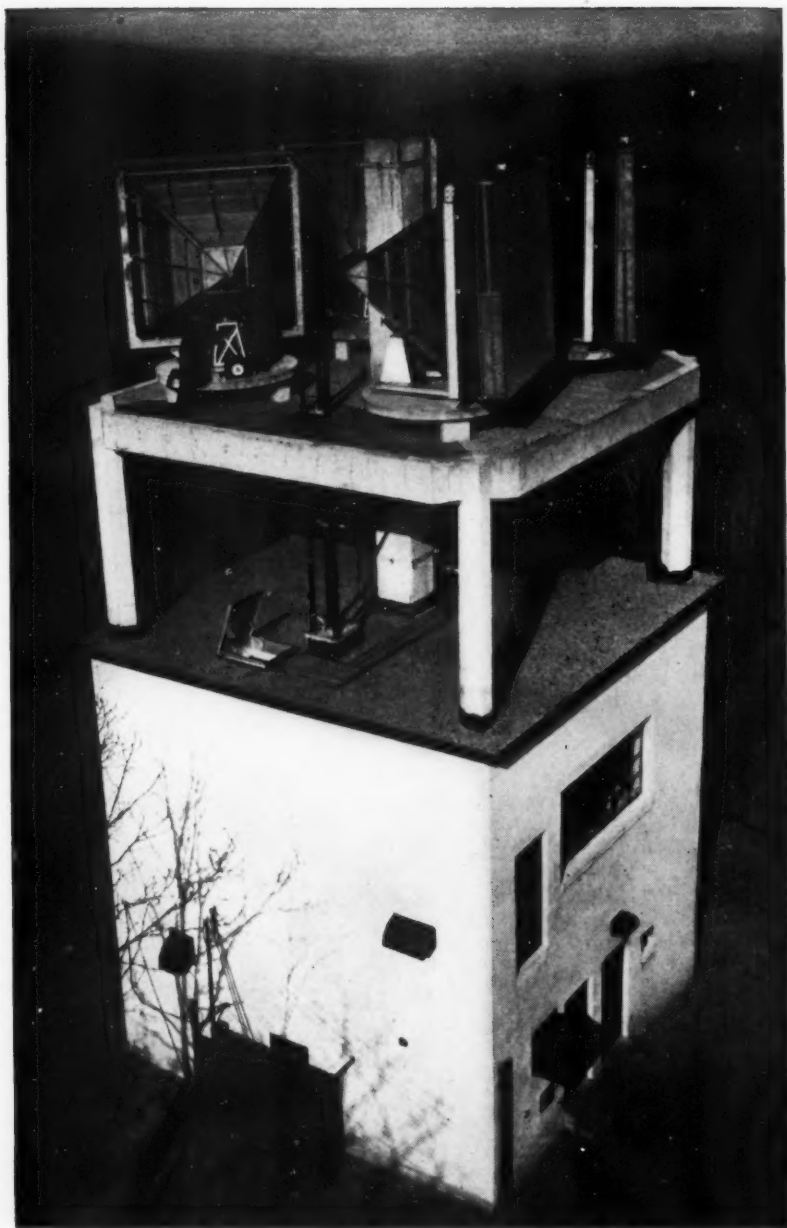
A M E R I C A N **FORESTS**

JUNE 1967

50 CENTS



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Airplane photograph of one of seven relay stations — to test use of radio "microwaves" for Long Distance services

Built by the Bell System, they will provide a new kind of Long Distance communication.

Each hilltop tower is a relay station between New York and Boston* for very short radio waves.

These "microwaves" are free from static and most man-made interference. But they shoot off into space instead of following the earth's curve. So they have to be

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These radio relay systems may be used for Long Distance telephone calls and to transmit pic-

tures, radio broadcasts and television programs.

This is another example of the Bell System's effort to provide more and better Long Distance service.

BELL TELEPHONE SYSTEM



*We have applied to the Federal Communications Commission for authority to start a similar link later between New York and Chicago.

AMERICAN FORESTS

Published by The American Forestry Association

VOLUME 53

JUNE, 1947

NUMBER 6

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Contents

MY FAVORITE TREE	243
By Harold E. Stassen	
EDITORIAL—The Hour of Decision on Public Lands	247
SHELTERBELTS ARE MORE THAN TREES	248
By Edward N. Munns	
FORESTRY IN THE MONTEREY PINES	251
By Charles H. Stoddard	
HEROES OF THE WOODS	252
By Henry F. Unger	
CONSERVATION AND WORLD LEADERSHIP	254
By Doris Payne	
—AND NOW TELEVISION	256
By Floyd E. Carlson	
DRIVING TO ALASKA?	258
By Freeman C. Bishop	
FARM FORESTRY IS FUN	260
By Morgah Monroe	
SAN GABRIEL TWILIGHT	263
By H. G. Wilm	
SOUTH CAROLINA'S DEPENDABLE CROP	264
By Charles R. Ross	
CONSERVATION BY COMMON CONSENT	267
By S. F. Welty	
MANAGING YOUR WOODLANDS	270
(Bankers See Values in Timberland, by John M. Richardson)	
FOREST RESEARCH IN JAPAN	272
By M. A. Huberman	
CONSERVATION IN CONGRESS	278
By A. G. Hall	

THE COVER

"White Water—Maine"

Photograph by John Kabel

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Leaning Tower, Yosemite
National Park, California
Ansel Adams



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The Purpose

The American Forestry Association is a national organization—educational in character—for the advancement of the intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is (1) to bring about adequate protection and perpetuation of these resources by creating an enlightened public appreciation of the need of conserving them through wise use for the present and future welfare and enjoyment of all the people; (2) to make available to Americans in all walks of life a wider knowledge and appreciation of their forest resources and the part they can play in the social and industrial life of our nation.

The History

MORE THAN half a century ago American men and women of vision, stirred by the rapid destruction of forests and forest life in the United States, began to raise their voices in behalf of conservation. Foreseeing the danger of allowing America's rich forests and vast natural wealth to be thoughtlessly wasted, these public-spirited individuals protested the needless destruction that was taking place. Out of their efforts came a collective force—The American Forestry Association, first organized in 1875 and made a national influence in 1882.

The Record

THUS The American Forestry Association has a long record of efficient public service. The establishment of the United States Forest Service and the creation of the nationwide system of state and national forests and parks were due in no small part to the Association's efforts. Its educational work, extending over more than seventy years, has stimulated public action and built public support for protection against forest fires and floods; for prevention and control of soil erosion; for the development of conservation policies in forest management for continuous production through wise use; for the control of forest insects and diseases and the preservation of fish and wildlife.

The Support

FROM AN ORGANIZATION of a few hundred members three decades ago, the Association has attained a substantial membership of many thousand men and women, living in every state in the Union and in foreign countries throughout the world. The funds of the Association are administered by a Board of Directors composed of individuals of national standing—men and women who give their services free, who have a practical understanding of the nation's present-day conservation needs, and are equipped through experience, ability, enthusiasm and training to advance the Association's program.

The Program

BECAUSE OF its independent, non-political character, the work of The American Forestry Association is vitally necessary in the field of public service. It provides an unprejudiced influence for the development of sound conservation measures. It helps coordinate public, state and federal policies. It cooperates closely with federal, state and private agencies in conservation work. At the same time it initiates, sponsors and carries on needed projects in conservation in addition to its regular broad continuous program of education.

MY FAVORITE TREE

By

HAROLD E. STASSEN

Former Governor of Minnesota



AMONG the many varieties of strong and vigorous trees growing in the United States, the tree that stands out as first in my list of favorites is the oak—that “patriarch of the trees, whose roots grow deep, and whose branches spread by slow degrees.” Growing fifty to a hundred feet in height, with a diameter up to three and four feet, and crowned by a broad top of heavy, spreading branches, the oak has been rightly dubbed by the poet Dryden “the monarch oak.”

From a material standpoint, the oak is of pre-eminent importance. Rated fourth in lumber production among all woods for many years, the oak ranks first among the hardwoods. Of the sixty-odd species that grow in the United States, the one largely responsible for this high reputation

is the white oak (*Quercus alba*). No other hardwood, I believe, possesses the combination of strength, hardness, durability and beauty of grain to the degree that the white oak does. For this reason, primarily, it is the leading wood for heavy construction, shipbuilding, furniture and flooring.

Quite apart from its rugged beauty and its material importance, the oak is my favorite tree because of its deep symbolical significance. The oak, whose sturdy character I came to know so well during my boyhood on the farm, has always represented for me the basic qualities of American character and life. No other tree suggests so figuratively and so emphatically the rugged strength, the free individualism, and the durable solidity of our American fabric.



For Clearer Statistics

SIR: In the publication of forest statistics, sometimes "log scale" is used and sometimes "lumber tally." Often there is no clear explanation of the basis or of the means for converting from one to another.

The difference between the "log scale" of a forest tract or a quantity of logs and the "lumber tally" derivable therefrom may be from five to 25 percent.

The West Coast Forestry Procedures Committee, a standing committee of this organization, has considered means of overcoming the present confusion. One solution would be the universal employment of the "lumber tally" basis; another would be the adoption of a better unit of measure than the variable and vague board foot—cubic foot measurement, for example. Lacking these solutions for the present, the committee voted to appeal to those issuing forest statistics, both governmental and industrial, to give in all published data the basis, whether log scale or lumber tally, and if the former, the name of the scale and the factor to employ in converting to lumber tally.—*Thornton T. Munger*, Chairman, Forestry Procedures Committee, Western Forestry & Conservation Association, Portland, Oregon.

Ads Add to Enjoyment

SIR: The "blessed event" advertisement in your March number (page 131, Milwaukee and St. Paul R.R.) was the most delightfully clever thing I have seen in a long time. I am too old to dance, but my spirit capered every time I took a look at the little red devil that represents the Midwest. You are getting out a mighty fine magazine and I enjoy it from cover to cover—however, I was well repaid

for my annual dues by the laughs I got from that page. If you feel down in the mouth, take a good squint at those dancers with the arm bands.—*Elizabeth T. Owen*, Beverly, Ohio.

Rancher Sees Public Values

SIR: I have read "Who Says Sell Our Public Lands in the West?" in your April issue. This statement of facts is a most comprehensive presentation of the situation. I hope this article will be followed by others because if the public at large is informed of what might happen to our public lands, I feel sure they will rise to the occasion and prevent the passage of the proposed legislation.—*R. E. Johnson*, L Diamond Ranch, Colorado Springs, Colorado.

How Beacon Rock Was Saved

SIR: The article on Beacon Rock on page 125 of your March issue interested me greatly, as I climbed the rock along about 1918. The pathway was in place at that time, and the ascent was made with a party of members of a mountaineering club from Portland, Oregon, known as the Mazama Club.

The story we were told at the time was that a company in Portland was contemplating buying the rock and blasting it to pieces for road building material. Mr. Biddle, who was described as a retired army officer at the Vancouver, Washington, barracks, heard about this and bought the rock; and he later had the trail constructed so that ascent could be made by almost anyone.—*E. J. Newcomer*, Yakima, Washington.

No Butts

SIR: I was much interested in Harold Olson's article "The Army Solves a Shortage" in April, but two of the photographs especially caught my eye as illustrations of fire-prevention

"DON'TS." The power-saw photo shows a faller who has overlooked putting out his cigarette before he picked up the saw, and in the truck-loading shot we see a scaler puffing merrily away on the log deck while he tallies the load. Either smoker might have to jump so quick, from a falling limb or rolling log, that he would lose his smoke in saving his neck. Fires have started in this manner, often not detected until the crew has left the woods.

In the California woods we have a rule: No smoking while working or moving about.—*Lem C. Hastings*, Manager, Red River Lumber Company Cruising Department, Member, North Sierra Forest Practice Committee, Westwood, California.

Georgia and the Forest Service

SIR: Reference is made to page 178 of the April issue, especially the last paragraph in first column.

I wish to call attention to the fact that Senate Resolution 20 was not passed by the House of Representatives.

In its place, House Resolution 107 was passed by both houses without opposition and signed by the Acting Governor. A copy was mailed to Senators George and Russell and to Georgia members of the House of Representatives.

House Resolution 107 is quoted below:

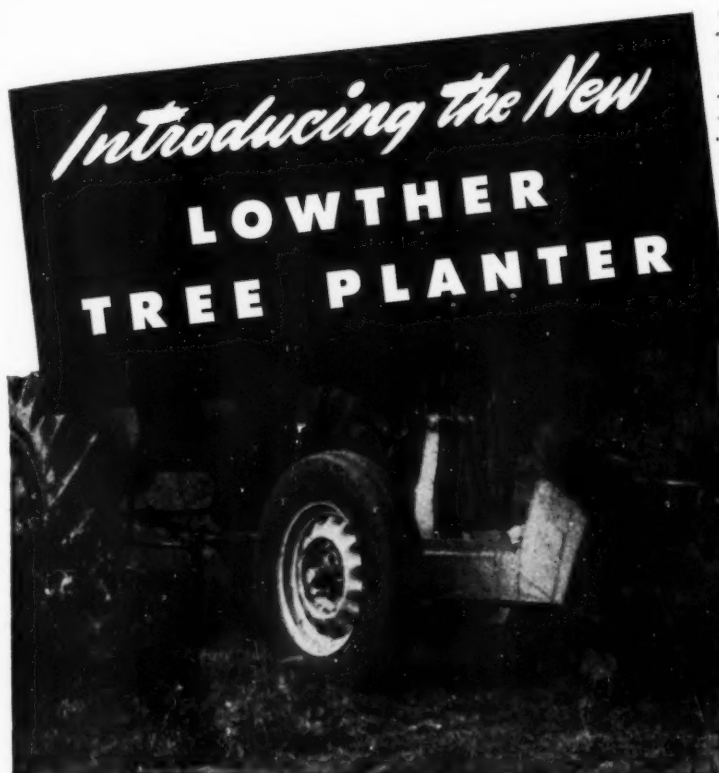
"WHEREAS, the forest resources of Georgia are of inestimable value to the growth of the State; and

"WHEREAS, extensive areas of forest land important to continuous production of timber, forage, water and wildlife are located within the National Forest; and

"WHEREAS, The United States Forest Service has and continues to administer the National Forests for the best interests of the United States; and

"WHEREAS, the National Forests under the efficient administration of the United States Forest Service has been of great benefit to the State of Georgia.

"NOW THEREFORE BE IT RESOLVED by the House of Representatives, the Senate concurring, that the Legislature of the State of Georgia commends the United States Forest Service for the services rendered the people of Georgia; and respectfully urges the President and the Congress to continue their support of the work now being done."—*A. Richard Kenyon*, Member, House of Representatives, Georgia Legislature, Hall County, Gainesville, Georgia.



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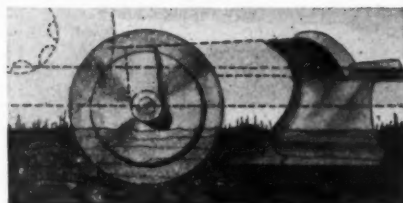
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The 28" coulter disk slices through roots and heavy sod to a depth of 9" preparing the way for the lister type plow. On striking a stone or other obstacle, the free floating coulter rides up and over the obstacle which also raises the plow clear of the object.

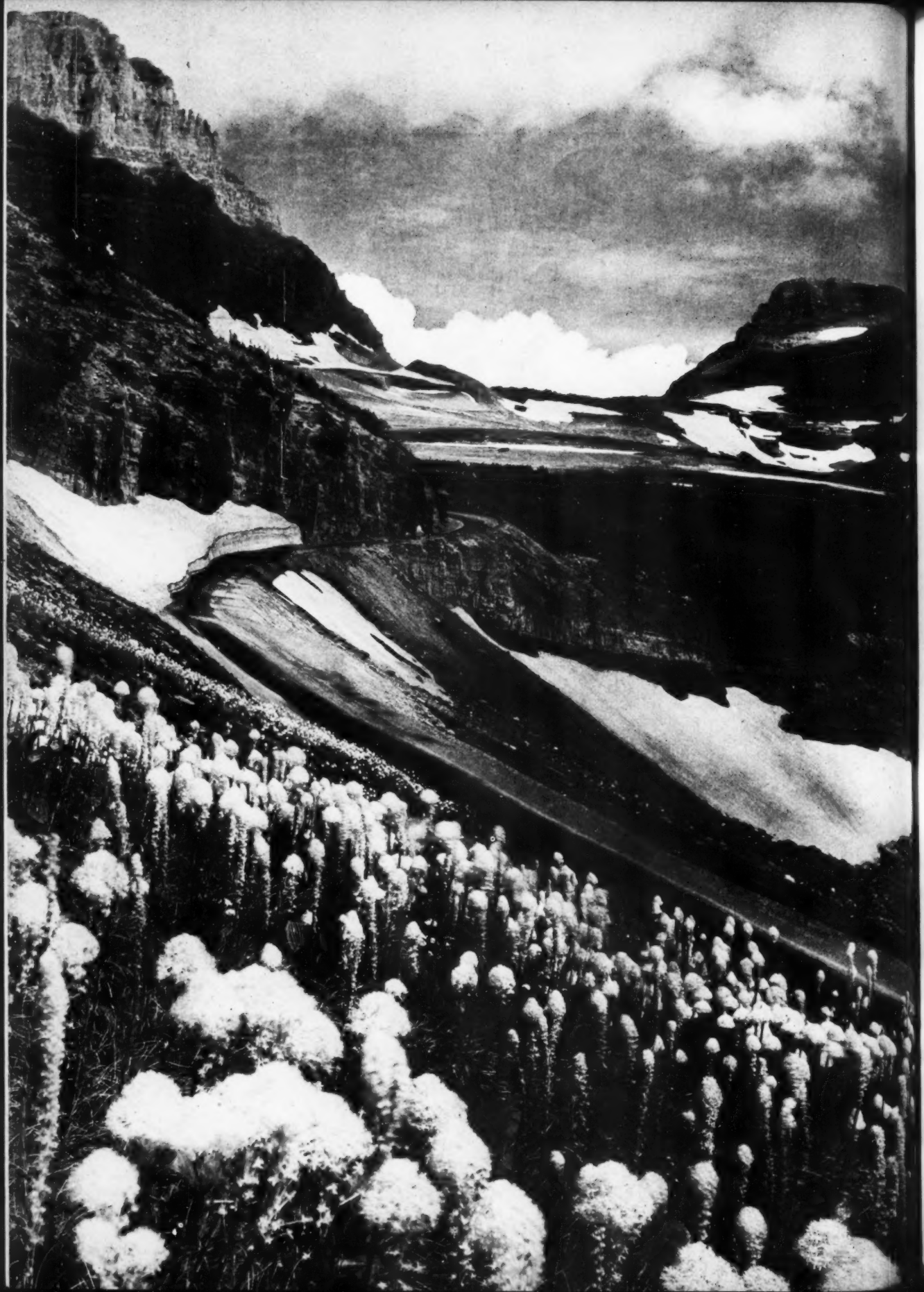
PLOW ACTION OPENS and CLOSSES FURROW...

Following just behind the coulter, the lister type plow lifts the soil upward and slightly outward. A 2" furrow is opened without casting the soil. After planting, the soil is released to fall in its original bed without distortion and the furrow bottom is closed.



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The Hour of Decision on Public Lands

PERHAPS to an extent greater than ever before, the management of public lands in the interest of all the people is beset with administrative difficulties. The main reasons are a lack of clear-cut, coordinated public land policies and urgent need for a reappraisal of public land values.

Not that we should be too critical of the hodge-podge which has resulted from uncoordinated attempts to build up publicly-owned areas. To the contrary, Americans should be thankful that they now have in public ownership sufficient lands on which to base a sound policy of land use. So long as the nation was blessed with greater resources than were necessary to supply immediate and long range demands, a national land policy was not needed. Nor as the public land management systems developed was the need immediately felt for an appraisal of public values.

But those days are gone. In three decades this country has experienced two major wars—costly, exhausting wars which made tremendous inroads on our resources. Further demands have been made by population increases and technological advances. And not only commercial resources are feeling these pressures; they extend to watershed forests, parks and monuments, to wilderness areas and wildlife ranges. To preserve these resources when they stand apart, each a distinct entity in itself, is relatively simple. But when two or more of a conflicting nature occur in the same area—that's where trouble begins. That is why a well-coordinated plan for natural resource management is urgently needed. That is why Congress must lay down such a plan if the interests of all the people are to be served.

A case in point is the problem now thrust upon the Department of the Interior's administration of the Jackson Hole country in Wyoming. Application for mineral leases has raised the question of what effect economic exploitation of oil and gas in the Teton National Forest might have on the adjoining Jackson Hole

National Monument as well as scenic and other values of the region. That Secretary Krug is fully aware of the problems involved is indicated by his calling early in May informal hearings of individuals and agencies concerned with the situation.

Under existing law, the monument area is not subject to leasing for mineral exploitation. Thus the problem at first glance appears to be whether or not mineral leases are to be granted on the Teton forest. But complicating this situation are intermingled private lands. If oil in any quantity is found either on the public forest or on private lands, not only will the unique qualities of the monument area be disturbed, but there is certain to be considerable pressure on Congress either to abolish the monument or to change the law to permit entry. To add to the complexity of the problem, the areas believed to be oil-yielding fall within a national forest wilderness area and within the feeding ranges of the famous Jackson Hole elk.

In view of the precedent which any action by the Secretary would establish, it is obvious that the problem cannot be solved on the basis of purely local considerations. It is bigger than Jackson Hole. Then, too, the Secretary, regardless of his decision, is powerless to prevent exploitation of any resource on the intermingled private lands.

The Jackson Hole case is only one of many—but it graphically illustrates the incompatibility of resource aims and uses. Within the area are national parks, a national monument, national forests and wilderness areas—timberland, rangeland, watershed, wildlife, recreation, and now oil and gas—in a mixture of public and private ownership.

These problems of incompatibility do not arise when resources are plentiful and easily accessible. They arise because of economic pressures and resource scarcity.

Federal and state forestry agencies generally have followed policies of multiple-use management; but with-

out clearly defined principles and legislative support, multiple-use is destined to fall, piece by piece, before loud demands for full exploitation of economic resources.

America must make decisions. In the case of the Jackson Hole country, are priceless wilderness areas, wildlife range, park and monument values to be destroyed in order to extend the life of a dwindling oil supply by perhaps several months? Similar questions can be asked of many other areas where conflicting resources are present. And, are small but significant areas of private lands within the exterior boundaries of public lands ever to remain a threat to the stability of public land management?

The answer calls for a national resource policy, based on surveys and land-use classifications and involving all resources, renewable and non-renewable. The Program for American Forestry adopted by The American Forestry Association recommends, so far as forest land ownership is concerned, a state-by-state study of the desirable relationship between federal, state and private lands and planning between the various classes of owners on future public forest acquisition. The Association also has reaffirmed its longstanding support of the national forests and parks and their extension to include areas which should be in public ownership.

Admittedly a study and classification of the public lands of America with a view to sound policies which can remain inviolate for a long period of time will be a major undertaking. But it will be less a task in the long run than repeated and continuous struggles to solve individual problems as they arise, the solutions to which establish precedents creating still more vexing problems.

This is a problem for the Congress of the United States to decide, since Congress is the only authority which can establish the overall policies and legislation necessary to the continued management of the public lands in the public interest.

SHELTERBELTS

How trees, planted a decade or
more ago—during the “Dust Bowl” era—
have helped remake prairie farms

WE MET Ed Casey one noon, taking supplies to a harvesting crew. He was a big, hearty man with a booming voice. And he was in a hurry. His wheat was being harvested; his early potatoes needed digging; his corn needed cultivation. He couldn't stop, he told us—that is, until he discovered we were foresters looking over his shelterbelts. Then he sat in the shade and talked.

It was easy for Casey to talk about his trees—and with good reason. Had it not been for his shelterbelts there is no telling where he would be now. Certainly not in South Dakota. Back in 1934, drought and blowing sand had nearly ruined him. Today Ed Casey, who is a good farmer, is better off than he has ever been. All because of his shelterbelts.

Casey told his story in the simple, matter-of-fact language of men of the soil. Up until '33 his South Dakota farm had given him a good living. True, he had worked hard—but he was strong and healthy and liked to work. He was almost out of debt; just a few more good crops was all that he needed. Just a few more good crops—little did Ed Casey realize back in '33 the agony he would suffer before they were harvested.

Late that fall sand began blowing from a large tract of sandy land to the west of him. By spring it had covered his wheat. Then drought set in; there was no rain, only dust. His corn turned brown by July. He tried again in the fall of '34, but the wheat was blown out of the ground. Light rains came and he tried a second planting, but because of

drifted sand only a scattered stand came up. This was so poor he knew there would be no harvest. He waited for spring again, but by then his fields were so hummocked it was impossible to use a corn planter. Besides, this was another drought year. He simply couldn't get going. The dry winds and dust storms ruined everything he attempted.

By fall Casey was licked. He was deeper in debt than ever. He had sold his livestock; he had no feed.

His neighbors fared little better, and there was considerable talk in town about pulling stakes and going to California where jobs were said to be plentiful. Indeed, some folks had already gone. Casey and his family liked South Dakota—wanted to stay there. But for weeks there had been no rain, and dust storms were becoming unbearable. Mrs. Casey, a good housekeeper, had quit trying to keep sand out of the house. It was impossible. So the talk they kept hearing about California—no dust, plenty of water—became easier to listen to every day.

Finally, Casey decided he couldn't take it any more. He would pack up and go. It was California for him—and the sooner the better. At least this was his state of mind that day he watched three men cross a sand field and head toward his house.

They identified themselves as foresters—U. S. Forest Service men.

Casey was surprised. “This is no place for folks like you. No forests around here. Had some Chinese elm up around the house and a couple of fruit trees, but they're dead now.

Blowing sand ruined the Haynes farm in Nebraska — one dune was 50 feet high. Cottonwoods, planted in rows, so stabilized the soil (right) that other vegetation has reclothed the dunes and drifts

U. S. Forest Service Photos



are more than trees

By EDWARD N. MUNNS



Sand and drought. I'm quitting. Want to buy a mortgage on a sand farm?"

"No," said one of the foresters, "but we did want to talk to you about it. We heard you were planning to pull stakes so we thought perhaps you might be interested in a proposition. South Dakota is a good country—and we believe we can help you stay here. If you can hang on a while longer, we will help you plant trees and stop your soil from blowing. Then you can get a crop."

Casey had heard about the shelterbelt plantings (Prairie States Forestry Project)—had, in fact, attended a meeting in town where they had been discussed. But he was too worried at the time to absorb what had been said. Now it was different. Worry had given way to desperation—the kind of desperation that makes a man cling to any straw. If these men believed they had a proposition that would save his home, would restore his crops, certainly it was worth listening to. So Casey listened.

And he listened well. Before the visit was over a new fire burned in his tired eyes. He would stick it out! He would assign part of his land to tree growing. He would fence out a piece of the farm along his property line—anything to keep sand out. He would help plant trees and would cultivate them. He would keep stock out. He would do anything for one more chance to save his home and farm.

That was a hard winter. The wind blew—and with it came the sand. When frost was out of the ground, a crew came and planted trees—15 rows of them. The trees looked

so tiny that Casey wondered if they would ever grow. They didn't. Before the last row was in, a wind came up. It started at dusk and blew all night. The plantings were ruined. Tree after tree lay in the sand. Some were buried under a foot of fresh dunes.

The foresters brought more trees and the belt was replanted. Another wind, and it had to be done all over again. These trees, too, were blown out of the soil. Indeed, so completely ruined was the third planting that the foresters were about ready to give up. But they would try once more. If this didn't hold, Casey was through.

It held, thanks to a light rain. And in a few days the bare twigs showed sprigs of green. That was in 1936. With those first leaves, real hope came to Casey. He stayed, he fought it out. He planted corn in the dry soil and made a partial crop. He cultivated his trees, even while wondering if they would live and grow—and stop the sand and hold the soil. They did. The sand piled up around and among them, but they grew faster than the sand. So the following year, on borrowed money, Casey planted more belts, dividing his farm into small blocks of about 20 acres each. He and the family did it all. Today the entire farm is fenced in with trees!

Would Casey leave now? Not by a jugful. He has his farm back. No matter how hard the wind blows, his soil is nailed down. And so is Casey. Out of debt, his farm more valuable than ever, why should he leave? Besides, his wife is happy again. Spring housecleaning is still a chore but

No wonder Ed Casey was discouraged in 1934. His crops were a failure and the fine sandy soil on his South Dakota farm was blowing away. At right is the Casey farm today, tied down by shelterbelts

U. S. Forest Service Photos



she doesn't have sand underfoot all the time, or in food, in the beds. No, this is home now—and with those trees around, the farm looks better than ever.

Yes, Casey has a fine series of shelterbelts. They are tight from the ground to the tips; no wind can get through them. Outside the belts, the soil is hard and compact—inside it is soft and spongy. Outside the sun is hot, and sand burs and weeds grow in profusion along the fence row; inside it is cool, birds flit from branch to branch, the ground is free of weeds. Yes, Casey had a fine farm.

Days later we met Al Mattson up in Oaks, North Dakota. The Mattsons had 640 acres, a full section of loamy sand. They, too, had been discouraged by wind and sun. And like Casey, they took hope when they were offered a shelterbelt. It was a success from the beginning. They were happy about it, but it wasn't enough. On a farm as big as theirs, especially one that blew so easily, the Mattsons had to have more trees. So they followed up their first mile-long shelterbelt with others until the farm was surrounded. Still not satisfied, they put in more belts, five miles of them, dividing up the farm into small interior fields. So taken was Mattson with his trees that even during the war when he and his wife had to do practically all the work on the farm, he cultivated his nine lineal miles of shelterbelt several times each year.

Mrs. Mattson is happier about the plantings even than her husband. "I just can't understand it," she said. "Sometimes the wind blows terribly hard. At night I lie awake and listen to the trees and wonder if the farm is blowing away. Then before breakfast I run out and look at our fields to see how much soil we are losing. At times I feel like crying, not like I used to when we could see our soil blowing away, but because I'm so happy over our trees. Now when the wind blows, I go out on the main road to see the other fields where the dust is blowing so hard. And I say to myself, 'Well, no one is going to get our farm.' These belts are just marvelous! It used to be that even when we chinked all the doors and windows, I had to scoop sand out of the house by the bushel after a blow. Now the windows are open all the time."

What used to be the Margaret Haynes farm near Neligh, Nebraska—and it was a good farm—now is a waste. If you have never seen a ruined farm, you should see this one. In places the light sandy soil had been blown into dunes—one fully 50 feet high. Elsewhere the surface soil had been blown away, in some places down to 10 or 15 feet. The farm fronts on Highway 14, a main north-south road. So bad

Increasing the beauty of the landscape, the belts also provide havens for birds

U. S. Forest Service



were conditions along this stretch that the county had to maintain a grader to keep the highway clear and to pull stalled cars out of the sand. The highway department had endeavored to stop the sand by the use of lath fences—but without success. In one place the top of the fourth snow fence could be seen sticking out of the sand. Three other four-foot fences, one on top of the other, had been completely buried.

The Shelterbelt Project undertook to remedy this condition. It planted cottonwoods in rows and in blocks. The trees turned the trick. The soil is now so stabilized that other vegetation has reclothed the dunes and sand drifts. Result? Cars no longer stall in the sand and the road grader is no longer needed to keep the highway passable.

Rube Bittner near Vernon, Texas, claims that he now gets his melons on the market from two to four weeks ahead of neighbors who do not have shelterbelts. This means about \$200 a year extra to him. And Rube ought to know what belts can do for a farmer, for he has some of the finest and tallest in all the shelterbelt region. Cottonwoods in nine years were 50 feet tall, honey locust 35 and mulberry 25 feet.

W. C. McDougal of Wilbarger County, Texas, has a cotton farm. From the windmill and water tower, one can look over most of it. That is, one could—for now shelterbelts near the tower interfere with the view. McDougal advocates shelterbelts to any and all who will listen—and with reason. For example, in August 1944, a strong south wind came up. It was dry and hot. The cotton was in full bloom and squares were forming. On unprotected fields, flowers dropped off without setting, and many of the immature squares withered on the plant. In September, McDougal estimated his cotton crop as from one-quarter to one-half bale better per acre than his neighbors without belts.

But not everyone is enthusiastic about shelterbelts. It was late one evening when we visited the O. P. Linscheid farm near Arlington, Kansas. Mrs. Linscheid said she had been a strong supporter of the program from the beginning—had even entertained Mrs. Roosevelt in her belt. But now she hated shelterbelts. Hadn't the coyotes come in last night and killed 150 of her turkeys and a lot of chickens while they were roosting in the trees? Of course, she couldn't blame the belts too much; people didn't hunt coyotes as much as they used to. Still it was the fault of the belts that coyotes could sneak up on the turkeys so easily.

Elsewhere, however, farmers have added poultry to their farming enterprise. George R. Phillips, former state forester of Oklahoma, says that in the high plains in the western part of his state, few farmers were able to raise chickens. The wind was so strong out there that the little chicks were blown off their feet and their necks broken as they rolled around on the ground. Farmers with belts now have little difficulty in raising chickens.

One cannot travel far within the shelterbelt zone without learning of the esteem in which the belts are held. Any complaints usually arise from those who now wish they were among the more than 30,000 farmers who have belts. One exception was a woman who enjoyed watching traffic on the road in front of her house. Now she wants a belt removed so she can see out again.

Farmers with shelterbelts know their value in terms other than stopping wind erosion. Earlier crops and heavier yields are generally reported. In especially hazardous areas, gardens and fruit are now possible. Belts provide posts and other minor products. Livestock, especially dairy stock, does much better when protected from winter winds. Belts have

(Turn to page 284)



Morley Baer

FORESTRY IN THE MONTEREY PINES

By CHARLES H. STODDARD

KNOWN throughout the Southern Hemisphere as the most rapid growing conifer, Monterey pine has never been considered commercially important in the United States until 1946. Since last July nearly 3,000,000 board feet have been felled and sawn into lumber to help relieve the lumber shortage in California.

The story of Monterey pine (*Pinus radiata*) is filled with a rich historical past. Cabrillo, the Spanish explorer, sailed up the coast nearly 400 years ago, caught sight of this rich pine forest and named the wooded headland "Cabo de Pinos." Unfortunately he was not botanically inclined and never realized he had discovered a new species of pine on the shores of the Monterey Peninsula.

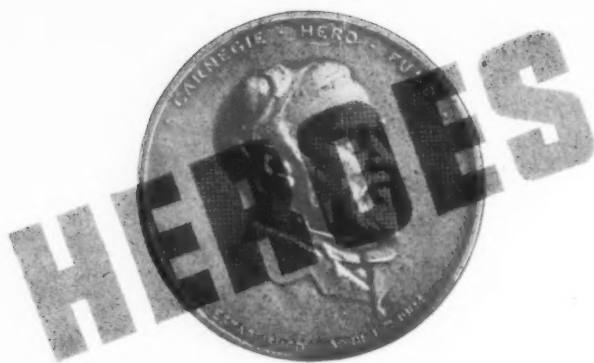
For another half century no one ventured near until the Spanish ships of Sebastian Vizcaino rounded Cabo de Pinos and anchored in the bay. Vizcaino had visions of masts and ships built from the stately pines to strengthen the Spanish king's hold on the great Pacific. But it was not until a century and a half later that Portola came to establish a Spanish colony and mission on the shores of Monterey Bay. The "Bay of the Pines" was renamed in honor of the Mexican Viceroy, the Conde de Monterey, after the Spanish took possession of California.

During the years of Spanish occupancy the city of Monterey was the capital. The pines were little disturbed except in the area around the

town and mission. Monterey remained the capital for some time after the United States acquired California. In later years the towns of Pacific Grove, New Monterey and Carmel were carved out of the forest. Soon the famous Seventeen-mile Drive began to wind its way through the woods. As civilization advanced, wood was needed for building and heating; axes rang out and roads were cut through the pine woods.

But the Monterey pines were not easily defeated. When wood fires ceased and cutting was reduced, new seedlings sprang up by the millions. Today the Monterey Peninsula and the adjoining mainland contain nearly 25,000 acres of mature forest. A

(Turn to page 275)



☆☆ *of the Woods*

By HENRY F. UNGER

THE plane streaked in toward the forest like a wounded bird. Frantically, pilot James H. Steward tussled with the controls as the stricken ship headed for a cluster of large trees. There was a resounding crash and a thousand streaks of light spiraled up. The plane catapulted off one tree to the earth and landed with a horrible thud.

Lumberman Le Roy Simmons saw the crash. For a puzzled second he was stunned, but a muffled roar inside the plane galvanized him into action. In a flash he knew that fire had broken out—that he must save the trapped occupants!

His heart beating rapidly, Simmons ran over uneven ground to the burning plane. Fellow workers shouted warnings of explosion, but these he ignored. For a breathless moment he surveyed the inferno. Flames shot 12 feet into the air on both sides of the fuselage near the pilot's compartment.

Working rapidly, Simmons tugged at the straps of the radio operator. One he unfastened in short order, but the other defied his efforts. Out of the corner of his eye he noticed a small hole in the side of the fuselage and quickly moved in, thrusting his head and one shoulder through a top opening. From this position he yanked desperately at the strap—again and again.

Then the intense heat got him and his strength began to ebb. But some-

how he managed to pull the radioman from his seat. And none too soon. An explosion in the wing rocked the plane, piling the lumberman heavily on the ground, the limp form of the radioman on top of him. Struggling desperately, he got to his feet and half-carried and half-dragged the injured airman from the inferno.

Again Simmons returned to the plane. He could see the unconscious pilot near the flames. But before he could reach him the trapped man fell into burning gasoline. Realizing that he was beyond rescue, Simmons ran from the plane, dragging the radioman with him. Less than 200 feet away he was shaken by an explosion.

That day in a Florida forest was an eternity of time compacted into fleeting minutes for Le Roy Simmons. For defying death to save the life of another, he was awarded the Carnegie Hero Bronze Medal and \$250 by the Carnegie Hero Fund Commission. His name was inscribed on the roll of honor at the commission's headquarters in Pittsburgh. For Simmons fitted Andrew Carnegie's definition of a "hero of civilization"—one who tries to save a life with full knowledge of the danger involved but with no thought of reward. His name was placed alongside those of other forest workers who, for a few moments, forget their regular routine and gallantly saved the lives of others.

In the 43 years since the Hero Fund was set up, more than 3,300 persons

have been immortalized in bronze, silver, or gold medals. Their stories tell of battles with water, poison gas, fire, electricity, wild animals—all waged on behalf of the other fellow. More than 38,000 applications have been received by the commission from those eager to record their deeds and win medals and cash. But standards of eligibility remain high.

No one is eligible who must save lives in the course of regular duty. The professionals, such as firemen and lifeguards, incur far less risk than amateurs, the commission holds.

But there is no dearth of amateurs—certainly not among forest workers. One summer afternoon in Montana, Patrick White, another lumberman, was walking along a path near an electric line. Suddenly he noticed a lineman hanging suspended from a pole by his safety-belt and correctly appraised the situation. The man had been shocked by the 3,800 volts of electricity.

As he ran toward the scene, White saw another man climb the 40-foot pole and knock the victim's foot from the wire. He, too, suffered a slight shock and descended, afraid to give further assistance to the lineman.

White quickly equipped himself with rope, leather gloves and climbing spurs and hurried up the pole. The lineman's clothes were burning—every second counted. Working desperately he placed a rope around the man's body, moving him despite the jolting shocks he received. Then

For defying death to save the lives of others, many woodsmen now wear the Carnegie Hero Medal

he tossed the rope over a spike and cut the lineman's belt.

Other workers rushing to the scene hurried up the pole and, with White's assistance, lowered the stricken lineman through the wires to the ground. Despite these gallant efforts, the man died two days later. However, the commission did not permit White's heroic deed to go unrewarded. A coveted Bronze Medal and \$1,000 was the hero's unsought reward.

Medals for drowning rescues by woodsmen are more common, but high drama was enacted one stormy afternoon in a Washington forest. While Lawrence R. Price was crossing a swollen river on a wire-cable foot bridge, one of the cables broke. The center portion of the bridge was all or partly submerged.

Thomas Wilson, passing in the area, saw the struggling man. Only his head was visible; his feet apparently were entangled in the wire netting that formed the side of the

bridge. A fast current tossed swells more than a foot high and extending 19 feet from the bridge.

Without thought of material reward, Wilson bravely walked onto the bridge for 65 feet. Price was out 245 feet. Fearing that his weight would cause the bridge to sink, the lumberman returned to the shore.

Urging a bystander to lend a hand, Wilson twice launched a frail boat into the stream without success. Then his companion deserted, afraid of the dangerous current. Determined to save the drowning Price, Wilson pleaded with another man to help him.

Paddling savagely against the crushing current, Wilson and his new companion finally reached the bridge 125 feet from the bank. Eagerly the woodsman grasped the cable and, foot by foot, pulled the boat along. Despite the agony of bleeding hands, he continued to fight the current until he reached the drowning

man. Then, almost exhausted, he climbed out on one of the cables and with pliers cut through the netting, making a hole large enough for the trapped man to squeeze through to safety.

The trio finally reached the bank and Wilson's heroism was later rewarded with a Carnegie Bronze Medal and \$500.

Not all heroes of the woods live to receive their just reward. John F. Williams died while valiantly attempting to save 15-year-old Marilyn E. Madsen from drowning near Scott Bar, California. His widow was given his Bronze Medal and \$500.

To keep fakers from receiving the famous award, the Hero Commission scrupulously checks every claim. Frequently field men duplicate a given feat as nearly as possible to make sure of its risks. The field men plunge into water, are lowered into gas-filled mines, expose themselves to every type of danger.

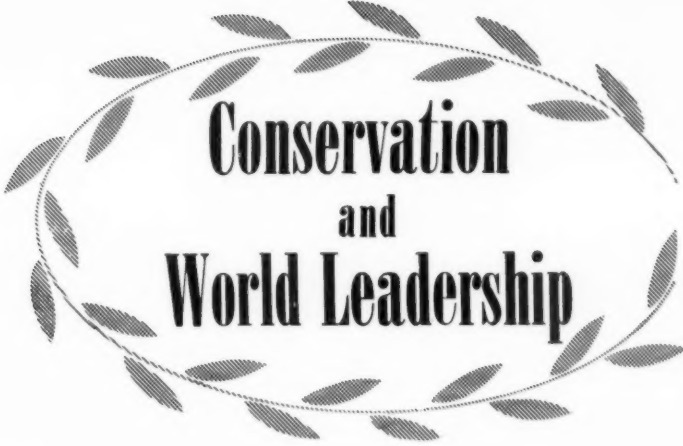
Agents found drama riding high in the investigation of the Archie G. Lennon case. While staying with

(Turn to page 283)



Lumberman Simmons half-carried, half-dragged the injured airman from the burning plane





Conservation and World Leadership

By DORIS PAYNE

America must conserve her natural resources. It is not just desirable. It is imperative. Not to do so will be to commit slow suicide as a leader among the nations of the world.

Challenge that statement. Dig down into its whys and wherefores. When every attempt to refute it has been argued to a finish, its truth will be only more apparent.

This country's leadership in world affairs has been achieved so recently that we have not arrived as yet at a full understanding of its significance; of what made it possible; of what is necessary to maintain it; of what responsibilities it entails; of what the consequences will be if we fail to meet those responsibilities. It is high time we took a thoughtful look at these vital questions, all of which revolve about the use we have made of our natural resources in the past, and the use we make of them in the future.

The United States is a young nation to have attained the position she so proudly holds. Only 170 years ago she was nothing more than a rebellious fledgling in Great Britain's flock of colonies; today she has developed sufficient economic strength to enable her to lend England several billions of dollars even after being drained by a global war.

As a fledgling, her political influence was nil; today she provides the permanent seat of the United Nations and makes her weight felt in every decision made by the great powers.

This country won her independence with muskets and muzzle-loading cannon; today, through her pre-eminence in the field of science, she has met successfully a threat to that independence with stratosphere bombers and atomic bombs.

Along with all this, the American people have attained the highest level

of physical and spiritual health to be found anywhere in the world.

To what can this nation's phenomenal growth be attributed, if not to her fabulous quantities of raw materials and the resources to convert them into goods? Granted that many other factors have played a part, no other is as basic and as indispensable.

Brains? We cannot deny that our brains were imported originally from Europe and still are largely "naturalized" rather than "native." Until transplanted, they remained relatively sterile. Free enterprise? A lack of raw materials would render it impotent. Our form of government? Other nations have an approximation of it, yet the mantle of leadership has shifted to us.

Just as America's natural resources have accounted chiefly for her rise to greatness, so the account she makes of these resources will determine whether or not she maintains that greatness. In achieving her present position of leadership, she has ruthlessly and recklessly consumed and wasted her resources. To continue to do so at the pace set in the past will be to join inevitably the ranks of the "has-beens."

Many people argue that when any one of our natural resources begins to run low, our scientific "know-how" will provide a substitute which will fulfill its purposes just as well — if not better. Assuming this were true, is anyone so naive as to believe that such a procedure could go on indefinitely? Would we not find eventually that we were having to seek substitutes for the substitutes? — and were being weakened immeasurably in the process? It is inconceivable that any nation so lacking in resources as to be dependent upon "ersatz" goods could be anything more than a second or third rate power.

One reason for this is that leadership is but one side of a coin, on the

other side of which is responsibility. And unless responsibility is clearly defined, the coin is counterfeit and destined to be thrown out of circulation. Any people so short-sighted as to fail in protecting their resources will find their claim to greatness wrested from them.

If, through our unthinking disregard, the time should come when the United States were forced to relinquish her present position, we would find the consequences far from our liking.

For the past six years we have been confronted, pointedly and painfully, with shortages of every description. True, many of these were caused by goods being diverted from domestic to military use, but they provide a mild foretaste of what conditions will ensue if our resources are allowed to become depleted. Our standard of living would drop to a level where many items now considered necessities would be luxuries; where shortages would be the rule with no hope of relief.

No longer could we have recourse to our accustomed means of re-creating our physical and spiritual energies. No longer could millions of people each year regain their perspective through association with such beauty, spaciousness and solitude as only nature can provide.

Failure to protect our natural resources and thereby our leadership would mean that the rich heritage which we are capable of passing on to future generations would be in jeopardy. The way of life that millions of our young men cherished more than life itself as they fought to protect it would cease to exist — lost to us through our own neglect.

Are these matters of indifference to us? If not, it is imperative that we make a decision and implement it with action. Will it be conservation — or slow suicide?



— and now TELEVISION

By FLOYD E. CARLSON

THREE television programs have been produced by the New York State College of Forestry at Syracuse University during the past year, over WRGB, the General Electric Television station in Schenectady. They were all short—less than 12 minutes—but they provided invaluable experience in getting acquainted with this most versatile tool in conservation education.

Right now television has a romantic appeal. It is new—it is developing. What its future may be is as difficult to predict as it was for the telephone, the motion

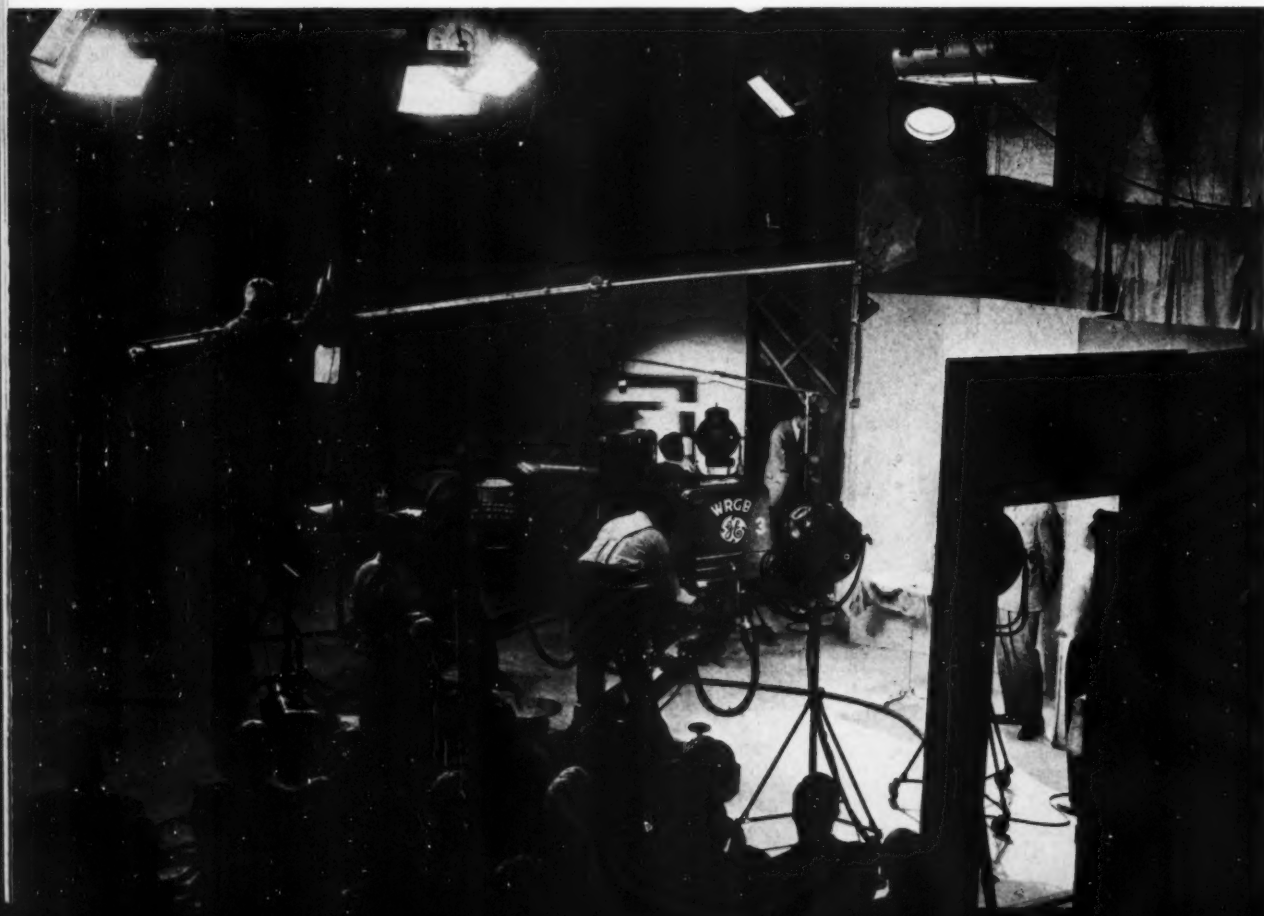
picture, or the radio. Without doubt, however, television is the most amazing and most flexible medium of communication that man has yet brought forth. Eventually, man should be able to face man, instantly, on any part of the earth.

In his book *Television*, Richard Hubbell points out that it is now possible for man to be in two places at the same time. The writer sensed something of this feeling when he stood before a television receiver at WRGB watching a boxing bout going on in New York City. This was transmitted from the spire of the Em-

pire State Building to the relay station at Hillsdale, east of the city of Hudson, then in turn received at the transmitter of WRGB in the Helderberg heights 12 miles from Schenectady, and from there retransmitted to the set where he both saw and heard the boxers and the reactions of the crowd.

During the past 10 years, on "Farm Paper of the Air," oldest continuous agricultural program in America, broadcast from Station WGY in Schenectady, the College of Forestry has gained valuable experience in developing its present work in radio.

Studio equipment is much more elaborate than for conventional broadcasting. Five persons can put a "sound" show on the air, but 18 to 20 are required for television productions



Television research, meanwhile, was under way at GE and eventually a television studio was established, paving the way for the present commercial station WRGB.

About two years ago the "Farm Spotlight" series, produced once a month by Bob Child, supervisor of farm broadcasting at WGY, became part of the regular program of WRGB. It was on this program that we made our television debut about a year ago.

There is a wide range of talent among the 53 members of the New York State College of Forestry faculty, and for the first show we chose a veteran in public speaking, Dr. William M. Harlow. It was necessary that our subject have a strong dramatic appeal, even though we were developing only a 10-minute program. So we selected "Poisonivy!" It was a natural because Dr. Harlow had only recently completed a bulletin on the subject.

How could we present an obnoxious plant on a television program and make our audience like it? First, we had to learn something about television technique, and second we needed a script.

A trip to the Schenectady studio gave us an immediate answer to staging problems. On large sets the limits are 12 by 16 feet; for small sets, five by eight feet. We were urged to keep casts as small as possible, to confine ourselves to three sets, and to avoid "exterior" scenes in the studio.

We saw three television "cameras"—big electric eyes—each mounted on a dolly carrying a cameraman, accompanied by a dollyman, and both wearing earphones for receiving directions from the mezzanine control room above the main studio. The "chauffeur" steering the dolly can silently advance, retreat, or maneuver right or left so that the camera can view fully the particular action to be televised.

Principal lighting comes from overhead mercury vapor lights with water-cooled jackets to keep the studio comfortable during production.

At WRGB, one end of the studio is virtually a stage, with everything at floor level. All kinds of stage equipment, floodlights, backdrops, scenery, fill the space. Beneath the large swiveled remotely-controlled lights, and over the heads of the actors, is the directional antenna or sound boom—a long, retractible arm carrying a microphone to pick up sound at any angle.

At the other end of the studio a



This staged location will look like the real thing to the radio audience as Professor Heiberg demonstrates how to plant a tree

raised platform seats about 40 spectators who help create an actor-audience atmosphere.

In the rear, steps lead to the mezzanine control room where the program director, technical director and audio director, seated before the control panel, face a series of three television views recorded by the three cameras used during production, only one of which is available to the television audience at any one time.

On this control "bridge" between the television stage and the audience, one is amazed at the flexibility of television and the tremendous challenge it offers to creative thinking in presenting educational material. For on the same panel from which the director selects one of the three cameras on the stage floor, it is possible to cut in instantly with motion pictures, slides, photographs, drawings and cartoons. And when the necessary film length is completed, with or without sound, the television view may as quickly revert to the studio scene. With one camera "taking" the action, one or both of the others can be moved to new locations and can anticipate changes of scene or setting, or position of the actors.

Into this practically unknown world

of television Dr. Harlow and the writer stepped gingerly a year ago, and with the aid of a courteous staff of directors and technicians, and with the quick wits of Bob Stone, director, and Bob Child, producer of "Farm Spotlight," our first television show appeared as "Poisonivy—Don't Get Rash!"

We drew up a rough draft for a 10-minute show, returned it to the studio for review and criticism and went back to Syracuse to complete the script. The following week, before a full gallery, our show opened in the "study of Dr. Harlow's home," with the center of attraction a potted poisonivy plant, scrupulously avoided by all the staff and cast. The action began with his "daughter" (professional 12-year old Sandra Goodsite) asking questions, and listening intently as "father" Harlow described the poison ducts in the leaf and stem of the plant. The television audience could "see" the ducts through a microscope (by a projected slide), and watched Dr. Harlow fondle the leaves of the plant as he explained that it is only when the leaf, stem, or root is bruised or injured that poison escapes from the

(Turn to page 281)

Radio expands its educational influence by showing as well as telling in a series of experimental broadcasts conducted by the New York State College of Forestry

Driving to **ALASKA**?

By
FREEMAN C. BISHOP



Highway approaching continental divide. Careful driving is the rule in this section—note washout at right

Famous Alaska Highway is now open to non-military travel—but red-coated mounties will turn you back if you haven't a permit, or if you are not well equipped and supplied

IF you are fortunate enough to obtain a permit from the Canadian Government you can drive to Alaska this summer. The famous Alaska Military Highway, built through the wilderness during the war as an emergency route to the Far North, will be open for limited travel. This means that if you have business in the North your chances of getting a permit are fairly good; but if you are going tourist, out for a holiday, you will have to be pretty convincing in your application to the Traffic Control Office.

The reason for this is mainly lack

of facilities along the 1,523 mile highway for repairing cars, selling food and providing other services. At present gasoline stations are 200 miles apart on the Canadian section of the highway and there are few accommodations of any kind. Thus the first qualification for a permit is that your car be "roadworthy" and that you are adequately equipped and supplied for the long trip. Royal Canadian Mounted Police will not let you on the road without rigid inspection of your vehicle.

So assuming your car is sturdy, that you have ample gasoline

storage, that you can fend for yourself in "the bush," and are able to convince Canadian authorities you rate a permit, a new highroad to adventure awaits you—also a few surprises. One is the discovery that this war-built gravel road starts at Dawson Creek, British Columbia, a good 1,000 miles north of the Montana-Canada border, so you will have to travel that distance, the last 500 miles of which is a dirt road, before starting on the Alaska Highway.

From Dawson Creek, your trip can be divided into four stages. The first day to Fort Nelson, about 350 miles,

is through prairie country slowly rising to the foothills of the Rockies. It is easy, pleasant driving. The second day's drive into Watson Lake, about the same distance, is quite different. The highway takes you straight through the heart of the rugged mountains, crossing the continental divide near Summit Lake. The third leg of your journey is a 300-mile drive into Whitehorse at the headwaters of the Yukon River; the fourth—if you care to make it so—a 600-mile push into Fairbanks.

The first day's travel is unexciting, but from the start of the second day until you arrive in Fairbanks the wilderness scenery is breathtaking as you ride along the benches of great rivers through the Rockies, the St. Elias Range and, at last, the towering Alaskan Range. Immense valleys extend out of sight in every direction, rimmed by great jagged peaks saddled here and there by sparkling glaciers.

There are only about 300 miles of the Alaska Highway in Alaska itself, winding westward from the border of Canada's Yukon Territory to Fairbanks. A few road houses and gasoline stations have sprung up along the Alaskan section of the road, mostly near big airports constructed by the U. S. Army during the war as stepping stones on the air supply route to the Aleutians.

It is possible to make the final lap of the trip into Fairbanks from Whitehorse in one day in summer when the midnight sun glares weirdly during June and July. However, most travelers are expected to break the trip at Kluane Lake or Burwash Landing, two of several projected settlements for the comfort of the adventurous motorist.

Whitehorse still has many picturesque reminders of the gold rush days when it was the starting point for many an arduous and risky voyage down the Yukon to the Klondike fields. And hotels have plenty of accommodations. A town of about 350 persons when the U. S. Army's Northwest Service Command established headquarters there in September 1942, Whitehorse prospered mightily and many wartime workers have stayed on to build a flourishing trade. If you like, from Whitehorse you can make the sightseeing trip by the narrow gauge White Pass and Yukon Railway 110 miles to Skagway, at the head of Lynn Canal in the southeastern panhandle of Alaska. Over this route passed thousands of adventurers in the mad rush to the Klondike.

In starting from Dawson Creek, a town of about 500 people surrounded by a withering shell of U. S. Army barracks, warehouses and abandoned equipment, you can purchase all the supplies you will need until you arrive at Whitehorse, although there is also Fort St. John, 30 miles north of Dawson Creek, with a population of about 300. There are trading posts at Fort Nelson and Watson Lake.

Insects will be a nuisance to you in some places along the road, particularly in muskeg country, although it is not true that the mosquitoes were often mistaken by U. S. troops for P-38's. The roadway on the whole is fairly clear of these pests.

While the bush is slowly creeping toward the roadbed, there are scores of good camp sites near rivers that become streams after the snow-flood torrents subside in June. Fishing and hunting are in abundance at many of the lakes and mountain ranges but be sure to check with the mounties before entering certain preserves.

The highway also is used to maintain and service the telephone line from Edmonton to Fairbanks which was built and operated by the Army during the war years. This is the only overland telephone connection with Alaska. Supplies and equipment also are trucked in over the road to airports and emergency landing fields strung along this northern airway.

The road was built to stay as an

all-weather route. After Corps of Engineer troops slashed through the pioneer trail, civilian crews packed down 16 inches of gravel and constructed steel and wooden bridges to last a lifetime. Engineers believe the road can be maintained on a minimum basis at about the same cost as secondary roads in North Dakota.

At road maintenance camps there are often fewer than a dozen persons but it is believed that intrepid Canadian settlers will move to some of these sites to set up overnight stopping places and stock some supplies.

At Fairbanks, the northern end of the highway, you will find a civic-minded community of more than 5,000 persons with much the air of any western town of similar size in the states. There are still some old sourdoughs who loaf out the winter betting on the various "ice pools," all of which depend on the split second the ice in the rivers decides to creak and twist its way toward Bering Straits. With the ice also will go the old sourdough to pan in some secret creek for gold dust to carry him through another winter.

Then you have to turn around and return over the same route unless you want to drive down the Richardson Highway to the Gulf of Alaska and ship home aboard a coastal vessel.

(For information concerning permits, write Assistant Commissioner, Royal Canadian Mounted Police, Edmonton, Alberta, Canada.—Editor.)

A million dollar suspension bridge in the wilderness—where the Alaska Highway crosses Peace River below Fort St. John

U. S. Army Air Forces Photo





By MORGAN MONROE

Especially when you do the planning and actual woods work yourself — and it can be a profitable enterprise as well

WHEN we moved to the country from suburban New York two years ago, we hardly knew an elm from an oak!

We had wanted, as many Americans do, to "get out in the country and really live." Our long-awaited adventure in country living began with the purchase of a 75-acre farm in the Farmington River Valley of Connecticut.

The 60-odd acres of woodland our farm contained fascinated us from the moment we first saw them, but at that time we had little idea of what they would mean to us. Short walks, a bit of nature study and hunting when time permitted, and the beautiful scarlets and golds of autumn were the chief pleasures we derived from our woodland the first year. The demands of wartime industry, together with "getting settled," allowed only week-end hours in our woods.

Our real adventure started one



Measuring and tallying the last tree on the ridge marked the end of a pleasant, healthful month in the woods. Trained by the local forester, the owners became "expert" timber cruisers

summer day the following year—in 1945. While reading our community weekly, I ran across an interesting item concerning the work of the farm forester in our area. The line that caught my eye indicated he welcomed calls from woodland owners. So I lost little time in getting him on the phone.

That call opened the door to one of the most interesting experiences we've ever had; but it wasn't until much later that we learned how much fun and profit we had missed by not making that call long before.

When the forester arrived a few days later he must have chuckled at our ignorance, for we were literally "babes in the woods." About all we could tell him was: "We like our woods; we want to conserve and improve them; we hope, in some manner, to make them pay their own way in the general development program of our farm. Have you any suggestions?"

At that time Dorothy and I were rather vague on these points. Remember, we weren't even sure what types of trees we owned! The forester, A. W. Hurford, was very considerate. Instead of offering the matter-of-fact technical appraisal of our woodland which we had anticipated, he drew us into an interesting discussion of our ideals, plans and philosophy of living. We were surprised to learn that a professional forester is much more than a good technician.

Forester Hurford offered no advice at first. He was more concerned with knowing what type of people we were, why we had moved to the country, what our plans for the future were, and related information. The discussion was so absorbing (as it always is when you're talking about yourself) that almost an hour elapsed before we realized that he was employing a basic psychological tactic to draw us out, make us think in terms of needs, desires and long-range plans and, in doing that, he did something for us we had not yet done for ourselves. Within that hour he had us thinking and talking of our woodland as an integral part of our way of life, instead of as something set apart. We had not considered it in that light before.

That naturally led to some understanding of what our woodland meant to us and that, in turn, helped us decide what we wished to do with it. Once a plan began to develop in our minds, we liked it much better than any presented to us in the form of straight technical advice, because it then seemed like *our* idea. Forestry suddenly became very attractive.



Morgan Monroe

This old dead chestnut houses several families of raccoons. The owners will leave it standing as a den tree for wildlife

It was not until then that the forester took us into our woods and began teaching us a few of the many things we didn't know. He had inspired in us an urgent desire for greater knowledge of our woodland, with the result that we fired dozens of questions at him throughout our walk.

The woods had been neglected for years. Blowdowns lay where they had fallen; no improvement cutting had been done; young stock was being crowded out by large, over-ripe trees. The stand contained oak, maple, ash, hickory, black birch, hemlock, a few pines, and some very fine, straight basswood towering above their neighbors in 80-foot majesty.

The stand was free of disease, but badly in need of improvement cutting. As the afternoon dwindled away we learned to identify suitable examples of crop trees, weed trees, and

trainers. We talked blithely of things which had been Greek to us a few hours before. We discovered that forestry could be fun.

When the forester left us that evening we were wound up like two kids the night before circus day. He gave us some forestry material to read and we spent the evening avidly consuming it. Each of us interrupted the other to test our new found knowledge with such questions as, "Do you know that red oak has a better growth rate than white?"

A few days later, under the forester's guidance, we made a complete survey of the ridge on which our woodland lies. With the information gained from this trip the three of us planned an improvement cutting program. We agreed to select only trees on the east side of the ridge. The west side, damaged by fire years ago, contains a fine stand of young stock

averaging six inches in diameter. We now refer to these as our "money in the bank" stock, for they will yield a profit when they are thinned 15 or 20 years from now.

While planning the cutting we realized, for the first time I think, that our woodland, if properly managed, will continue to yield "crops" throughout our lifetime. This aspect of forestry management was one of the most enjoyable parts of our education. Like many uninformed woodland owners, we had assumed before meeting the forester that we must either cut all our trees if we were to realize a profit from them, or allow them to stand idle and non-productive if we wished to enjoy their living benefits! We now launch savage attacks on the evils of clear-cutting when anyone so much as mentions it.

The improvement program we cooked up called for the cutting, on a selective basis, of all large trees which interfered with the growth of young stock on the east side of the ridge. A minimum cutting diameter of 10 inches was set. Weed trees and other undesirables smaller than 10 inches were to be cut for fuelwood after the timber was out.

At this stage in our forestry education we made an important decision we have never regretted. We had reached the point where it was time to select, measure and mark the trees to be cut so that sawmill operators could be invited to bid on the timber. Mr. Hurford offered to assist with the work, but we decided there was no better time to learn the application of practical forestry in our own "backyard." After several days of careful instruction, Dorothy and I went into the woods, armed with cruising stick, blazing ax, tally card, and a great desire to improve our woodland.

Working gradually (we were painfully slow at first) up the ridge in a series of north-south cruises, we soon discovered that returning to the house for lunch each day lowered our marking average. What better excuse to pack lunch and enjoy it in the restful company of huge oaks and maples? Lunch became an adventure. Sandwiches taste better in the woods and the aroma of vacuum-bottle coffee mixed with the scent of hemlock boughs is something I shall not even attempt to describe.

We learned many things on those cruising trips. We found where the mountain laurel is thickest, where grouse hide during the day, how deer make their beds, and what fascinating company a sharp-eyed gray squirrel can be. Each day we saw and listed new varieties of birds and wild-

flowers. Fox burrows, raccoon dens, and the tracks of other wildlife showed us that our woodland was sanctuary for many wild neighbors. As both of us are amateur naturalists and game fanciers, this knowledge brought us pleasure and satisfaction. Those daily cruises were better tonic for overwork and wartime fag than any a doctor might have prescribed.

Late each afternoon we arrived back at the house tired, happy and hungry, but never too tired to compute the board feet of timber we had selected and marked that day. It was a standing joke that the current market value of the marked timber was our "pay" for that day. Some days we paid ourselves well, but when Dorothy discovered several clumps of new wildflowers, or I demonstrated my old Boy Scout prowess at following a fox trail, we were "underpaid."

Selection and marking required a month. We could have done it in much less time, but the experience was too pleasant to hurry. Both of us were a bit sorry when the job was finished. We learned every foot of our woodland and acquired a new concept of what it meant to us and to the wildlife. We spoke of "the big oak on top the ridge" and "the chestnut where the 'coons live" in the same tone one would mention old friends.

When the final tally was made we had selected and marked 124,000 board feet of timber for cutting. I doubt that we were ever more proud in our lives than when the forester, in a little story about our activities which he wrote for the forestry department's monthly publication, pointed out our work as a good job.

What followed after marking was completed was the most amazing part of our "free course" in owner-forestry. We had assumed that after patiently instructing us that far the forester would consider his work finished. Instead, he supplied us with samples of timber sales contracts designed for owner use by the Connecticut Department of Forestry. They were so simple and foolproof that even we understood them. When we had selected one for our use, the forester then sent out invitations in our behalf to all reputable sawmill operators in the area, requesting that they inspect our timber and bid on it, if interested.

We had no difficulty selling our timber, although we didn't sell it to the highest bidder—and therein lies a moral for careless sawmill operators.

We were so determined that our younger trees should not be mutilated more than necessary when the timber

was cut that, upon our forester's suggestion, we investigated former cuttings of each operator who bid on our lot. From other owners who had sold timber to the high bidder we learned that his cutting crews were not properly supervised.

After receiving excellent reports on the second highest bidder we accepted his offer and, much to our delight, the cutting was accomplished as carefully as if we had done it ourselves. His men were skilled and he personally supervised them.

The profit from the timber sale makes it possible for us to carry on our improvement program for years to come, with something left over for other farm improvements. This year we receive another profit from cordwood, since we retained the rights to the tops of all trees cut (something else we didn't know until we read those sample contracts). This amounts to 300 or 400 cords of good hardwood. And since it is now bringing \$10 a cord at the roadside, we may realize as much from it as we did from the timber. Fifteen or 20 years from now the west side of our ridge will return another profit when it is thinned; then the east side again, and so on as long as we live. Meanwhile, we have our woods to enjoy and they are in better condition than when we moved here.

From those less fortunate we have learned that unsound farm woodland practices bring disappointment and lowered property values. Barren, eroded, clear-cut hillsides prove that each time we drive through the country, and yet such experiences may be so easily avoided. Our opinions carry no professional knowledge. We are only amateurs—and new amateurs at that—but we have the firm conviction that most of us who own woodland, particularly those who have recently bought country property or plan to do so, owe it to ourselves, our families and our nation to know more about what we have and what may be done with it before we risk losing it through ignorance.

If you own a stand of trees, on a building lot or farm woodlot, find out all you can about them. This is much easier than you may think, if you will seek the right source first. Avoid the advice of unqualified friends, neighbors and relatives as you would the plague. They mean well, but their faulty advice, if you follow it, may make you miserable for life. Seek advice about your trees from your state forestry department. Its purpose is to protect and conserve woodland—so why take a chance on anything less?

(Turn to page 284)



San Gabriel Twilight

THE mountains lie in shadow. Glancing rays from the dying sun tinge with reddish gold the topmost needles of nearby trees and the distant edges of silhouetted peaks. Darkness creeps slowly upward, spreading from the black mouths of caves and from somber canyons where it has lain all day in hiding. Rising and flooding in wave after inundating wave it covers first the valleys and the forest-covered slopes, and then the highest

summits in a silent sea of black.

At last even the golden trail of clouds begins to fade and darken, breaking the final bond with departing day. A soft, warm touch of wind streams by for just a moment, whispering gently to the trees and breathing the scent of pine and chaparral. Far below a night bird sounds a cry of lonely sadness, its echo rippling and fading in the rock-bound pools of silence.

By H. G. WILM

But wide and deep though this ocean of night may seem, it can bring only an interlude of darkness. Soon its tide must ebb before the gathering power of dawn and day will come again, pouring the glory of sunlight like a dancing waterfall into the valleys of the world.

South Carolina's *DEPENDABLE CROP*

By CHARLES R. ROSS

"**I**S THE province of South Carolina worth conquering?" asked an advisor to King George III. The reply of Britain's Lord Cornwallis was, "Yes, if for no other reason than the bream in the Santee." Abundant game saved the state's first settlers from the starvation that decimated Jamestown and Plymouth. And ever since woods and streams of the Palmetto State have been famed.

Nor do forests fade into the background when attention is focused on the state's economic life. Among all the plants that have been harvested in South Carolina, none has proved more dependable than trees — or gained so steadily in importance.

Two hundred years ago South Carolina seemed blessed with a rich agriculture that would perpetuate its early affluence. Rice and indigo enabled the colony to boast of providing a third of American exports. And when happenings far away eliminated the market for these crops, planters found a bigger one—cotton. They moved rapidly to the foot of the Appalachians, clearing the oaks and pines and planting cotton in the strong red earth. Again outside developments operated to limit the role of the state's chief crop. Of five major crops at one time or another—rice, indigo, corn, cotton, and tobacco—only tobacco has held its place.

Since the surplus of old growth was removed a generation ago, the value of timber has risen steadily. Rice, cotton, and corn fields wherever abandoned by farmers have generally produced thick, fast-growing stands of trees. Growth of all forests has been above the Dixie average. Thousands of farms originally were paid for, and have been saved from mortgage foreclosures since, by sales of

timber. Consequently, many landowners have a high regard for their trees.

While the agriculture of the state has had discouragements in the past, it is believed today to be climbing onto firm ground—through mechanization, the use of scientific knowledge, and sound agricultural leadership. This promises a better forest situation, too, for good farms mean better forests.

The first thorough forest survey in South Carolina was made by the U. S. Forest Service in 1936. Its findings doubled the earlier official estimate of sawtimber. Last winter the State Commission of Forestry, assisted by the State Department of Research, Planning, and Development, and by the Forest Resource Appraisal, completed a second inventory.

During the 10-year period, the forest acreage of the state had increased from 10,930,000 acres to 11,570,000 acres. The volume of sawlog size trees, however, had decreased from 31,000,000,000 board feet (19 billion pine and 12 billion hardwood) to 29,750,000,000 board feet (17.7 billion pine and 12 billion hardwood). On the other hand, the volume of trees under sawlog size had increased from 45,250,000 cords (16.2 million pine and 29 million hardwood) to 53,500,000 cords (20 million pine and 33.5 million hardwood). The total volume of sound trees over five inches in diameter had also increased, from 136,750,000 cords to 219,000,000 cords.

The foregoing statistics disclose an impressive record. For the past 10 years the state has probably supported a heavier sawtimber cut, in proportion to forest acreage, than any other east of the Rockies. The cut of pulpwood is twice as heavy as in the average southern state. Fuelwood and other drains have been substantial. Yet South Carolina's growth rate was able to replenish nearly all the drain.

Timber growth, like timber volume, had been greatly underestimated before the Forest Service studies were made in 1936. The writer was employed at Clemson College when the new growth estimates were announced. He remembers the silent pause that overhung a gathering of foresters when told that sawtimber volume had increased 700 million feet, and the total timber supply four million cords, between 1936 and





U. S. Forest Service Photo

A fine stand of second growth longleaf pine on the Francis Marion National Forest. Longleaf is still common over the Coastal Plain, although continuing, as for decades, to lose ground

1940. Nearly everyone had thought cutting was far ahead of growth. Actually, the forest had been gaining.

For the eight-year period, 1936 through 1943, the Forest Service estimates the average yearly cut of saw-log size trees to be 1,475,000,000 board feet, while the average yearly growth of sawtimber was 1,425,000,000 board feet; the average yearly cut of all sound trees over five inches in diameter was 4,812,000 cords while growth on such trees amounted to 5,062,000 cords.

The pattern of South Carolina's physical regions is clear and readily seen. There are two broad divisions, the Piedmont and the Coastal Plain. The latter is either flat or nearly so for 75 miles inland, then rises in the form of broad hills. These Sand-hills lie on its northwest side. The Piedmont occupies the northwest one-third of the state.

Forest types and tree species are characteristic of the southern pine region. About 60 percent of the saw-

timber volume is pine. For all growing stock over five inches, however, hardwood volume is about the same as pine. One-half of all pine is loblolly. Shortleaf is next numerically, being most abundant in the higher western half of the Piedmont where loblolly does not extend naturally, but is being established by planting. Longleaf pine is still common over the Coastal Plain, although continuing, as for decades, to lose ground. Slash pine occurs south of Charleston and there is Virginia pine in the higher part of the Piedmont.

Wet river swamps and creek bottoms make up one-fourth of the Coastal Plain forest. These rich sites grow red and tupelo gums, of much fame in the veneer and furniture world. Gums account for half the state's hardwood volume, with oaks running almost a fourth. Hickory, poplar, ash, and maple are present in considerable numbers. Hardwoods are widely distributed in the Piedmont but have not enjoyed as good

commercial demand as in the Coastal Plain, probably because of defect caused by fires.

Like a mineral deposit, the southern pine forest has its rich streaks. One such streak is found along the South Carolina coast where the pines are tall and fast growing and—most desirable of all—regenerate abundantly. These pine woods afford a hot argument about the use of fire as a proper silvicultural tool in this low country. Some day it may be demonstrated satisfactorily that fire can be used purposely and safely to kill back unwanted hardwoods. Some forestry experts think that better means than fire will be found to maintain pine. Certainly the field calls for research, since little information is to be had for South Carolina conditions. Pine can be maintained more easily in the sandy flat-wood soils than elsewhere in the state. Present growth is far below what it might be in the lower Coastal Plain, but forest management is in-

creasing rapidly and there is no pessimism regarding the region's future.

Hardwood stands of the Coastal Plain present a mixed picture. Growth is slow among swamp hardwoods, although some bottomland hardwoods grow as rapidly as pine. Regeneration appears to be no problem, either with light or heavy cutting, although fires are destructive in good hardwoods at any time. The main problem is the obstruction of desirable restocking caused by culls and low-grade trees not usable at present, although their sound wood could fill many uses.

Appraisal workers listed non-merchantable "competing vegetation" as causing 72 percent of the unsatisfactory stocking in bottomland hardwoods. The pulp industry is taking more interest in these hardwoods, which is helpful but thus far offers no general solution. Here is an opening for pilot plant research to test commercial possibilities.

There is an outstanding problem area in the sandy, northwest side of the Coastal Plain. Portions of a dozen counties are involved. These extensive uplands once supported notable pine forests, principally longleaf. Pine regeneration has been failing for many decades on these sandy hills and although they put in appearance here, elsewhere hardwoods will not grow satisfactorily. Artificial reforestation seems the only hope for the pine sites of the Sandhills.

Timber of the Piedmont region is mostly pine, but that is not a natural condition. Over half of the forest land there had been under the plow at some time in the past. Deserted cotton fields are still coming in with their rich stocks of pine. The lower Piedmont has been producing more timber than any area of similar size in the state. Hardwoods take over in the northwest two-thirds of the Piedmont after "old-field" pine stands have been cut two or three times. Hardwoods are fair on Piedmont creek bottoms and on much of the upland, so that even if the up-country gradually reverts to almost pure hardwood stands, timber production need not drop. However, if there is to be any significant boosting of forest yields, pines must be maintained on the dry, thin-soiled places at least.

A few years ago under the stimulus of federal AAA payments, farmers of this section set thousands of acres of idle fields to loblolly pines. These planted forests have impressed people tremendously. They are expected to be three times as productive as

average stands. Similar encouragement for the planting of pines in scrubby hardwood areas should stimulate a much needed forestry practice.

Efficient work by the State Commission of Forestry has steadily reduced woods fires over the past 19 years. However, Appraisal examination of some 2,000 plots showed that 20 percent of the state's forest area burned during the past five years. This averages four percent yearly, a conservative figure because repeat burns were not counted. Burning becomes more prevalent nearer the coast. Fairly good protection is being brought about in the Piedmont. Half the counties there have had less than one percent annual burn.

Elimination of wildfires is a desirable goal in all sections. The fire situation does not give evidence of a clear solution in the lower Coastal Plain, according to information obtained from 12 timbermen and 20 county agents and conservation technicians in that section.

Several things stand out with regard to forest conditions in South Carolina. The forest is evidently as productive as it ever was in the past. Intensive practices going much further than fire protection and conventional harvesting are needed to raise production materially. The woods must be rid of obstructing hardwood culls of all sizes. Pines must be planted on a large scale in the scrubby, non-restocking woods where pine seed trees are lacking or ineffectual. And of course such planting would demand effective fire control.

Forest utilization began early. Nearly 300 years ago colonists were paying for the necessities of life with exports of cypress, pine, and cedar timbers. When large scale lumbering arrived about 1900, it did not build up to boom proportions and fall back exhausted. The annual lumber cut has averaged 700 million board feet for 40 years, seldom deviating widely from it. Settlers apparently cleared as much of the omnipresent original forest as did the lumbermen, but foresters should give credit to the unwitting activities of five generations of farmers. The time-honored cycle of land clearing and abandonment provided those super wood-growers, the "old-field" stands already mentioned.

Pulpwood cutting increased spectacularly in the last 10 years; the present annual output of about a million cords represents an expansion of almost 2,000 percent. More wood has always been used for fuel in South Carolina than for any other

purpose. There is general awareness now even in the back country that if live trees are going to be used for wood, the "sorry" kinds should be cut. But convenience will always carry strong weight in such a laborious operation, and people change old habits for new but slowly.

Forest industries rank second to manufacturing, which is dominated by some 250 textile mills. Manufactures were worth \$567,000,000 in 1939, three times the value of agricultural products. However, agriculture employed many more people. Smokestacks mark the upper Piedmont as a heavily industrialized section. Not so the rest of the state, which needs industry to reduce the strain on overpopulated farms. Scattered lumber, veneer, furniture, and pulp plants are about all the manufacturing industry seen on the Coastal Plain. A great deal of this state's really exemplary effort to advance forestry has sprung from the realization that the lower two thirds of the state must have industry to progress, that forests are the obvious best source of raw materials.

The 1940 Census listed nearly five million acres in farm woodlands. Another four million is owned by business and professional men, sportsmen, and the like. Possibly one such landowner out of seven now shows a disposition to invest his own labor, or that of tenants or others, toward intensive practices of timber farming, such as cutting culls, preparing fire lanes, and interplanting pines. It is believed that this small number can be raised to 50 percent of all owners in 15 or 20 years if there is assistance and guidance along the lines developed for crops and pastures. After 10 years of such assistance by area foresters, 40 percent or more of the nine million acres should come up to a reasonably good standard of cutting.

A quarter of the woodland is in the hands of owners who cannot be expected to respond to forestry education and assistance, although this does not mean their woodlands will be uniformly poor, since nature and accidents can create excellent stands (old fields for example) without forethought on the owner's part.

Local opinion is divided about equally on the question of enacting laws to prevent close cutting by commercial timber buyers, or to require that they leave pine seed trees. However, it is widely believed that federal conservation payments to encourage conversion of scrubby woods

(Turn to page 287)

CONSERVATION

by *Common Consent*

By S. F. WELTY

NOT the quickest, but one of the best long-run measures to solve a conservation problem on a wide scale is rural zoning to restrict land use. After 13 years' trial, present conditions are giving it increasing importance.

Consider the situation in Wisconsin, the state which pioneered in rural land zoning.

Twenty-five years ago, following World War I, there was a boom in mid-western farms. Good land in Iowa and Illinois was selling for as much as \$400 an acre. Men back from the war, unable to pay the high prices, went into the cutover country of northern Wisconsin, where land was available at \$20 to \$30 an acre. Some of them bought "farms" in isolated spots and on land too rocky, sandy, or full of stumps to raise crops. When the agricultural boom broke, the Wisconsin counties into which these settlers had come found themselves getting farther and farther into a deep financial hole.

Unlike the pioneers of early days who expected to take care of themselves or die trying, many of the twentieth century settlers relied wholly on their government. When hard times struck, or when their farms could not be made to yield profitable crops, some simply abandoned their land and went on public relief. Others clung grimly to their homesteads. Even when their taxes were delinquent year after year, these settlers demanded that roads be built to their isolated homes and schools provided for their children at enormous cost to the local governments.

In 1926 more Wisconsin farms went tax delinquent than in any other year. By state law, tax delinquent land reverts to the county in which it is located. When tax certificates on over 2½ million acres, or nearly one-fourth of the entire land area of the 17 northern Wisconsin counties, were offered at the 1927

tax sale, only 20 percent of the land was bought up. Something had to be done before counties went bankrupt.

The Wisconsin legislature appointed an Interim Committee on Forestry and Public Lands to make recommendations. Specialists from the Wisconsin College of Agriculture acted as advisors. A resolution was introduced into the legislature providing for rural zoning.

The principle of zoning in regard to city property had been established for nearly 50 years. But no applica-

tion of the principle to rural land had ever been made until the Wisconsin committee proposed in 1929:

"Counties should have the right to give every possible aid in agricultural zones with the aim of building up prosperous farming communities. But they should have the right in sections of isolated farms, with heavy tax delinquency and numerous abandoned farms, to set such areas aside as forest and recreation zones, and be empowered to control the construction of more roads and schools." Wisely used, the report said, the power to zone would enable the distressed counties to limit governmental costs and promote best land uses.

The subsequent development of this proposal has been even more successful than its original advocates dared hope. The Wisconsin legislature, adopting the report of the committee, passed an act making zoning possible, and in 1933 Oneida County was the first to take action under the law. The proposed ordinance stirred up hot opposition. Agricultural experts from the university who tried to explain it at public meetings were



L. G. Sorden

Seven years after zoning, this land purchased from the county by a paper company supports a good stand of planted jack pine



Prior to zoning, the area shown in the photograph above was wasteland dotted with abandoned homes and farm buildings

ordered to get out or be thrown out. But when the voters realized that the whole project would be administered by local officials directly responsible to the local people, and that it was designed primarily to lift the county out of bankruptcy, they decided to give it a trial. Since then 24 other Wisconsin counties, mostly in the cut-over north, have adopted similar ordinances. Moreover, faced by similar problems, Michigan, California, Indiana, Washington, Tennessee and Georgia have begun to try out versions of the rural zoning idea.

Exactly what is rural zoning? How does it work? Using Wisconsin's experience as an example, the county board of supervisors starts the project. Generally a committee is directed to frame an ordinance.

The committee determines how many classes of land-use districts to propose, and what uses are to be permitted in each district. Its members work in consultation with the district attorney, the State College of Agriculture, the Conservation Department, and attorney general. They must know the location of tax-delinquent land; of all farms, even abandoned ones; of publicly owned lands, whether federal, state, or county; of private lands not on the regular tax roll, such as forest crop lands; of rural schools and school districts. They must learn the types of soil and drainage in the county, and areas which have been or might best be developed for recreation.

They propose three types of use: unrestricted, forest, and recreation; sometimes mixtures of the three. They seek the advice of township boards on the proposed boundaries of these land-use districts. Town meetings discuss the proposed ordinance and its provisions as illustrated by the committee's map. Always a county-wide hearing is held. With the information gained from the people involved, the committee presents its facts, with a proposed county ordinance and map, to the county board. The board makes such changes as it sees fit, and presents them to the townships for approval. The "test of reasonableness" is the standard applied to the proposals.

When the township boards have approved the ordinance and suggested map corrections, the ordinance is finally enacted by the county board and the map published. Both may be amended later if it is found that unnecessary hardship is being worked on some citizens.

A record must be made of acreages

which do not conform to the restricted usages as mapped. In other words, if a settler has a farm on land that will henceforth be restricted to forest crops, his land is recorded as non-conforming. He cannot be made to move, but he can be encouraged



Randolph G. Pack

PACK FOUNDATION ANNOUNCES GRANT TO AFA PROGRAM

Randolph G. Pack, president of the Charles Lathrop Pack Forestry Foundation, has announced a grant of \$25,000 to The American Forestry Association in the furtherance of its Program for American Forestry. An additional \$75,000, conditional upon an equal amount being raised from other sources, was also pledged by the Foundation.

Ratified by its membership early in the year, the Association's Program will be translated into action in cooperation with existing public and private agencies and associations.

The Pack Foundation was established by the late Charles Lathrop Pack, nationally known conservationist, and from 1916 to 1922 president of The American Forestry Association.

to do so. If he ever wants to sell his land, the county may try to buy it or trade land in an unrestricted district. If the farmer is not self-supporting and does not pay his taxes, this is comparatively easy. Non-conformers

cannot get help from the Farm Security Administration. And if the Federal Land Bank acquires non-conforming land, it has agreed not to sell it for agricultural purposes.

Zoning does not automatically remedy past mistakes.

Non-conforming land will continue as such if its owners want to keep it so. But zoning can and does stop the new settlement of land entirely unsuited to farming and where the settlers will be a constant drain on the public purse. Moreover, the county and the state have the authority to promote land exchanges between the county and private citizens.

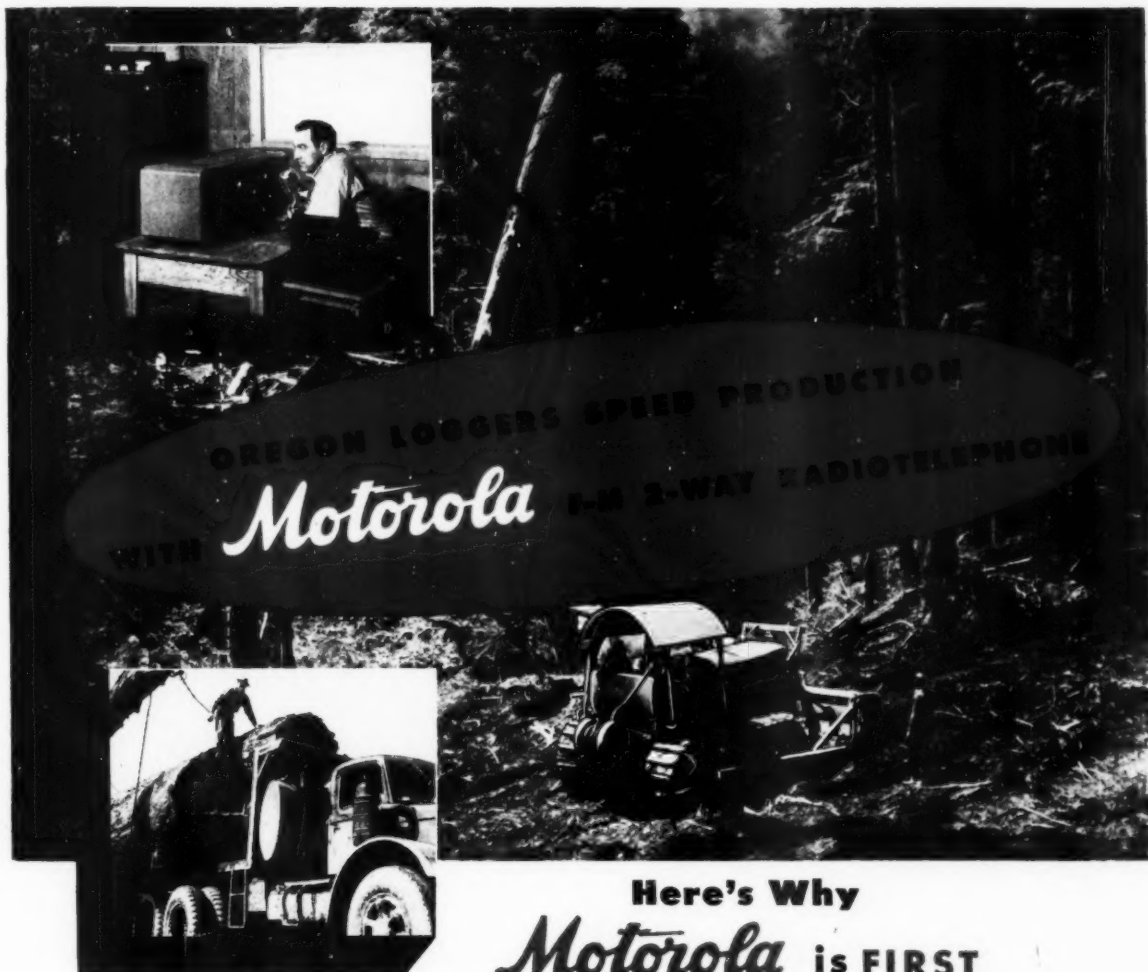
It pays. Take an example. In 1934, one family on an isolated farm in Forest County received \$350 of county money for transporting its children to school. For them and for one neighbor's family, the township spent \$5,000 on a one and a half mile road, and nearly another half mile remained to be built when county authorities persuaded both families to sell their farms and settle in a district where roads and schools were easily and cheaply available.

In the course of several years, about 600 settlers on isolated farms have been bought out or persuaded to trade their land. About 1,400 non-conforming parcels of land are still left, but the relocation process continues. And many of those left are on the edges of restricted areas where they cause little serious concern either as fire hazards or as undue expense to their townships.

"Relocation without rural zoning is a job never done," says Walter Rowlands, a member of the extension service of the Wisconsin College of Agriculture and one of the pioneers in developing the Wisconsin program. "Rural zoning without relocation is a job half done. Rural zoning followed by relocation will make both a success."

Zoning for resettlement was primarily a negative measure, intended merely to prevent further land abuse. But as it turned out, rural zoning had a constructive aspect which soon began to outweigh the original idea in importance. At about the same time that the Wisconsin legislature passed the land-use act, it also enacted a forest crop law providing that property owners, finding that their land could no longer be used for agriculture or settlement under the zoning law, need only pay a fixed annual tax of 10 cents an acre for 50 years, plus a severance tax of 10 percent of the

(Turn to page 284)



OREGON LOGGERS SPEED PRODUCTION
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WOODLANDS

A page dedicated to the management of woodlands, large and small—practical suggestions in procedure and technique and in the solution of problems on the ground.

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BANKERS SEE VALUES IN TIMBERLAND

By JOHN M. RICHARDSON

Well-managed woodlands are an important part of the farm economy in Oregon's Clackamas County

Expert management is the rule in Oregon's Clackamas County's extensive farm woodlands, according to J. E. Blinkhorn, agricultural field representative of the First National Bank of Portland.

The farm woodlands of this county are, in reality, rather tremendous forests, aggregating around one billion

board feet of merchantable timber, largely Douglasfir, covering around 66 thousand acres. Under the guidance of Alvin L. Parker, farm forester for the county, and other forest agencies, farmers have come to look upon their timber crop as a farm crop.

Farm woodlands, which usually are located on good soils and fairly close to markets, are ideal for sustained-yield management, but too frequently in the past the farmers of Clackamas County have sold stumpage for a fraction of its real value. Where the land was not needed immediately for farming, the forest was slashed with vicious abandon, leaving a wake of denuded and despoiled brushland of little value. No one is blamed for this situation, because the timber market then was restricted. Now, however, markets are plentiful for all wood products, and such practices are vigorously discouraged.

Parker and his predecessors have pointed the way to an expanding market for forest products. Since the tracts have trees from sapling size to giants five and six feet in diameter, a wide variety of forest products must be marketed. In the past 18 months, Parker has worked on woodland management programs for 310 Clackamas County farmers, has advised 253 others in harvesting forest products, and has answered 111 miscellaneous calls regarding tree planting, land clearing, and forestry in general.

"The average Clackamas County farm woodland can be a treasure trove for its owner," Parker says. "Illustrative of this statement, I cite the experience of Charles Marshall

in the Beavercreek-Clarks community, who has been giving thoughtful management to a 30-acre stand of Douglasfir, occupying one-third of his farm. The man is in his sixties. During his boyhood, he rode a horse through this timbered area, and at that time he could stand in his saddle and touch the tops of many of the trees. The same trees now are 90 to 125 feet tall and from 10 to 24 inches in diameter at the base. The average age is 65 years.

"Marshall's stand is very dense, the result of natural seeding from scattered old growth trees. The rocky ground and uneven terrain are more suitable for timber growing than for cultivation, hence its designation as a perpetual farm woodland.

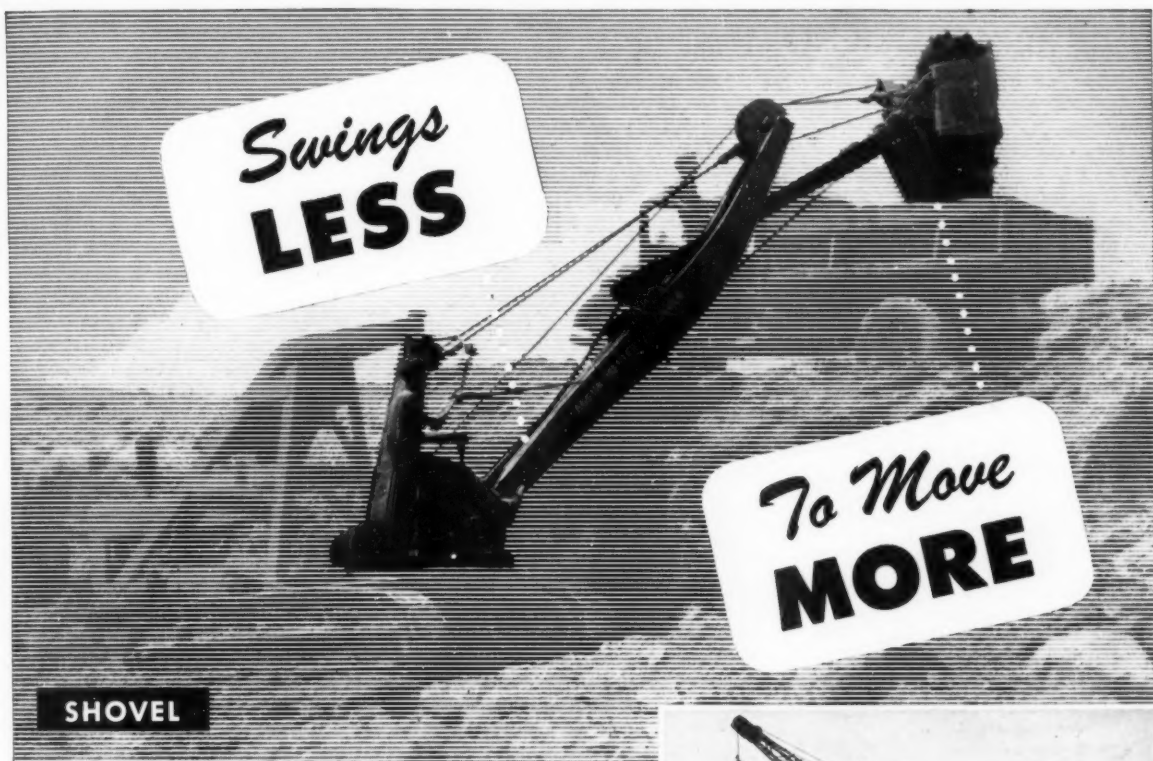
"All the growing trees are approximately the same height, 100 feet or more, with scattered old growth trees towering higher. The trees are limbless except at the very top. This is the normal result in a closely-grown stand. Natural pruning by shading has caused the lower limbs to die, which contributes to good quality of timber in the limb-free trunks. Marshall is now working through his 30-acre tract, thinning out the suppressed and crowded trees for cordwood. In a six-hour day he cuts about two cords of wood into four-foot lengths. For this, he is paid \$7.50 a cord, as it lies in the woods. Approximately 60 cords of wood is grown, cut and removed each year without diminishing the original value of the 30-acre area.

"Marshall has been careful to preserve the top, or crown cover pattern, removing only the trees which fall short or are being crowded out. Trees must have top light to survive. In a matter of 20 years the remaining trees, forming a well-stocked stand, will be Douglasfir sawlogs of a very high grade. Some will qualify for peeler logs in the plywood mills. At that time Marshall or his son will begin the final harvest, removing the trees, not all at the same time but in

(Turn to page 285)

Since his boyhood, Marshall has seen these Douglasfirs grow to be 125 feet high





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Forest Research in Japan

By M. A. HUBERMAN

Soil protection, fuel, food
and timber are products of
70 years of forest studies



Cuttings of sugi, a conifer,
produce vigorous root systems

JAPAN is on edge. Over three-fourths of the country is hilly or mountainous. Only one-sixth is suitable for cultivation. To protect these precious food producing acres from soil washing and floods it is absolutely essential that the less fertile soil on the steep mountain slopes be held in place by vegetation, and especially by trees. Therefore, the Japanese began their first forestry research on planting trees in 1878, and for a quarter century kept the chief emphasis on nursery and tree planting problems.

Clear-cutting followed by
planting is common practice ➤

What is now the Meguro Forest Experimental Station of the Bureau of Forestry began as the Nishigahara Arbicultural Experiment Station, and then became the Meguro Experiment Nursery before the research expanded into the additional fields of silviculture and forest products. This station, on the outskirts of Tokyo, lost a large part of its equipment and records in the fire-bombing of May 24, 1945. Notwithstanding this destruction of many years of work, Dr. Mitsunaga Fujioka, recently retired director of the station, was cooperative in providing the Allied Powers with information and contacts.

Besides the research being carried on at the Bureau of Forestry's central station, the more progressive of the

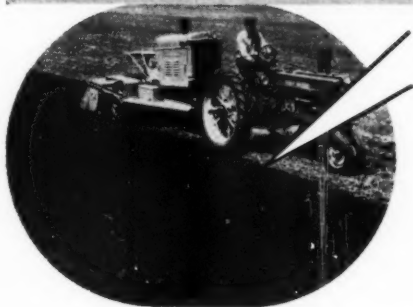
regional foresters have inaugurated local studies in order to determine the best management methods for the forest types on their individual national forests.

In addition to these studies, the Home Ministry, which is the overseer of the individual prefectures (corresponding to our states), is responsible for the forest experiment station in Hokkaido, started in 1908, and individual smaller prefectural stations in Kagoshima, Hyogo, Wakayama, Toyama, Yamanashi, Shimane, and Fukuoka.

To complicate the forestry research picture further, the Imperial Bureau of Forests and Estates, which manages the Crown Forests, established a Tokyo station in 1921, and a rather



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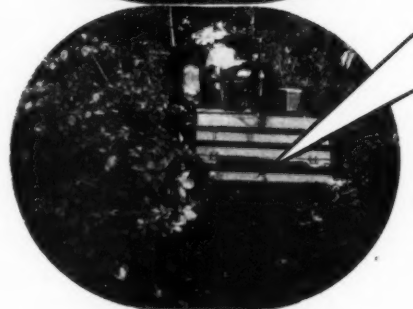
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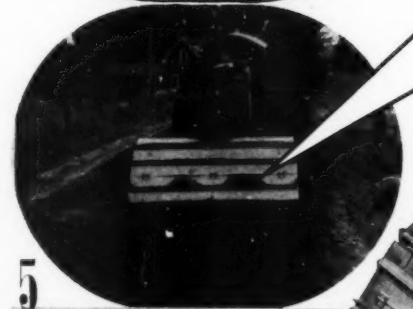
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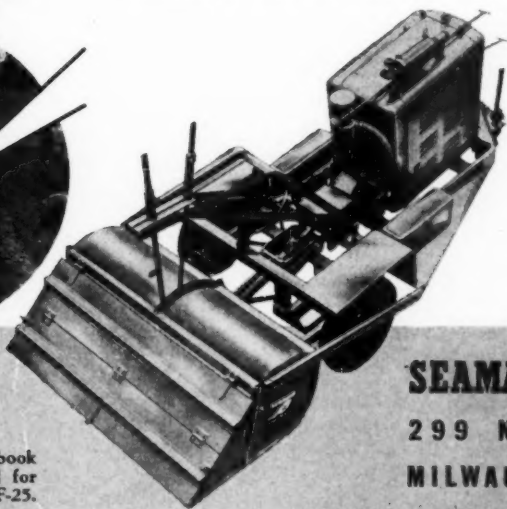
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modern one in Hokkaido as recently as 1940.

Some experimental work is also done at the four major forestry schools at the Imperial universities at Tokyo, Kyoto, Fukuoka and Sapporo, in the form of library and laboratory research, and field work in the university forests.

From 400 to 500 people were engaged in forestry research in Japan before the war. Of these, about 225 were employed by the Bureau of Forestry, 75 by the Imperial Household, 75 by the Hokkaido station of the Home Ministry, and an average of about 10 by each of the seven prefectural stations. The work at the universities, of course, is the part-time activity of graduate students and professors.

In 1945 over one-third of the funds budgeted for forestry research was spent by the Bureau of Forestry, and the remaining two-thirds was divided among the Imperial Household, the Hokkaido Station and the seven prefectural stations. In the 10 years between 1935 and 1945, the Japanese government quadrupled the financial support for forest research because of the heavy dependence of the economy on maximum exploitation of its forest resources.

The question naturally arises as to what Japan has bought with the expenditure of these men, money and materials.

The research results which have received widest application have had to do with reforestation. Sugi, or cryptomeria, has been planted in most parts of the country. Hinoki (*Chamaecyparis obtusa*) has also been widely planted. The Japanese foresters claim to have selected several varieties of sugi, some of which are best adapted to northern Japan, others to southern Japan, and still others to Kyushu and Shikoku. More tangible than the claims for varieties are the findings on successful rooting of cryptomeria cuttings.

This is a real accomplishment, as any American nurseryman or tree physiologist who has tried to root coniferous cuttings will admit. New twigs of vigorously growing sugi are gathered in the proper season, and are trimmed to 12 or 15 inches from the growing point. The leaves are stripped from the butt-end of the twig, and the base of each cutting is cut on a slant, to make a lopsided wedge. The wedge-ends are then set in a trench about four inches deep, and firmly packed with the night-soil-enriched, black, sandy loam of the nursery. With proper weeding, cultivation and

watering, almost 100 percent successful rooting is obtained. In seven or eight months, each cutting develops a fibrous root-system almost as large as a man's fist. The high percentage of survival of the many mountain slope plantations of sugi is attributable, to a large extent, to the vigorous root system developed in the nursery.

If similar results could be obtained with American conifers there would be considerable saving in time, work and money in our planting programs. American efforts to root pine and spruce cuttings have required delicate handling of expensive chemicals, such as indole-acetic acid and others, under greenhouse conditions, with artificial heating, and even then have produced a discouragingly low percentage of rootings. American foresters and plant physiologists would do well to work with cryptomeria cuttings as a guide to behavior of American coniferous species.

It was startling to find, in connection with studies of exotic tree species for planting purposes, on the Crown Forest at Kagura-mura in Hokkaido an acre of our white pine (*Pinus strobus*) growing alongside similar patches of spruce (*Picea excelsa*), Scotch pine (*Pinus sylvestris*), and European larch (*Larix europaea*). These trees were over 40 years old. Despite the apparent success of these species, they were not used in commercial planting.

Another widespread application of research findings has been in erosion control. Many combinations of tree planting and physical structures have been used to hold the soil on steep slopes in areas of heavy rainfall. Terraces with dry or wet masonry retaining walls, or old railroad-tie rip-rap work, coupled with plantings of red pine (*Pinus densiflora*), alder, willow, or sugi have been applied successfully on a large scale.

Likewise, a tremendous amount of back-breaking work has gone into sand-dune reclamation. Methods used by the Japanese are very little different from those developed in this country, except that they seem to have made much wider application of such control measures.

Much time has been spent, especially during the war years, in developing food products of the forest. In addition to special studies of edible nuts, fruits and associated vegetation, such as ferns and wild horse-radish, the artificial culture of edible fungi, *Armillaria matsudake*, and *Cortinellus shiitake*, has been carefully worked out. Branches of several hard-

wood species are inoculated with the spores of these fungi and placed in the shade of hardwood trees. The fungi grow and are collected and dried for use in soups. In times of critical food shortage during the war, and especially today, such research has meant a great deal to the Japanese seeking to supplement short rations of staple items.

An almost unbelievable sight was an early morning logging train of the Oji Paper Company in Hokkaido, loaded to overflowing with old men, women and children with bags, knapsacks, and all manner of containers on their way to the woods to gather herbs, mushrooms and berries. And more unbelievable was the fact that the company, a Zaibatsu concern which before the war controlled over 90 percent of Japanese pulp and paper production, actually charged these people, families of its employees, a few yen each for the right to gather such food items and for transportation on logging trains which had to make the trip anyway.

Charcoal is a highly important product for heating and cooking in the picturesque and practical *hibachi*, or braziers. For this reason considerable effort has been put into improvement of charcoal-making methods. Several experiment stations have developed improved designs for kilns to permit the condensation and capture of volatile materials, which in America yield alcohol and other valuable by-products. Nevertheless, with very few exceptions, charcoal continues to be made in primitive earthen kilns which require much hand labor and still permit the potential chemical-yielding fumes and gases to escape. This is difficult to understand in a chemical-poor country like Japan, and especially in view of the Japanese reputation for thrift and abhorrence of waste, a reputation which seems to be well-deserved in so many other fields of activity. Inertia to change from ancestral methods may be part of the answer. One improvement has been in making briquets or balls of charcoal particles too fine to transport in the straw bale containers and too fine to use in domestic braziers. These balls are made by hand with mud or clay, dried by the sun, and shipped in the usual straw and grass containers.

In addition to heating and cooking use, charcoal has played a highly essential role in maintaining transportation during periods of gasoline shortage in oil-poor Japan. Charcoal-burning gasogene engines coughingly,

(Turn to page 286)

Monterey Pines

(From page 251)

large part of it is owned by the Del Monte Properties Company which has blended the wild natural beauty of the original forest with a program of homesite development. Now after many years of "locking up" this rich forest, a planned forestry program has begun under the supervision of Charles Olmsted, vice-president and company engineer.

Rather than attempt to go into the lumber business, Del Monte Properties is conducting a timber sale similar to that carried on in the national forests. A large California lumber concern, the successful bidder, has built a modern, electrically driven mill with a 25,000-board-foot daily capacity. Timber felled and bucked in the woods with power saws is skidded with tractors and arches to loading points close to the main roads. Portable loading equipment picks up the logs and drops them on waiting trucks where they are hauled to the mill near Pacific Grove.

Almost all the lumber produced at the mill is sold locally where it has eased a serious lumber shortage. Many of the modern homes on the peninsula are being built of native pine instead of the usual redwood and Douglasfir.

Botanically, Monterey pine has a fascinating story. Because of the high fog which hangs over the peninsula during the dry summer months, high temperatures are rare. Where the summer fog line stops, the forests of Monterey pine end. Thus the range of these pines is restricted to a few points along the California coast where such conditions are prevalent. Only on the Monterey Peninsula, however, are commercially valuable timber stands to be found.

On the Del Monte Properties only large, mature trees may be cut, usually 14 or more inches in diameter. Where dense thickets of small even-age trees are found, heavy thinnings have been made, particularly near recreation areas or future homesites. Small trees and tops are cut into pulpwood and shipped to a roofing mill near Los Angeles. The oldest tree found was only 70 years old—and 32 inches in diameter at breast height.

The ease with which Monterey pine can be managed is a delight to the forester's heart. Cutting is followed by abundant, even a dense stocking of seedlings. Three or four feet of height growth in one season is not uncommon; it is the usual thing.

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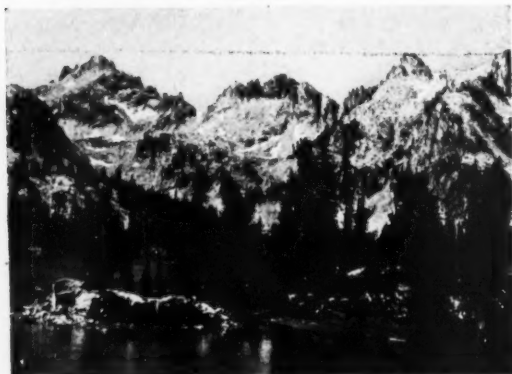
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Expedition No. 1—July 7 to July 18—\$172

The Flathead-Sun River Wilderness of Montana—a country of rugged grandeur just south of Glacier National Park and straddling the Continental Divide.

Expedition No. 2—July 12 to July 19—\$129

The Flat Tops Wilderness of Colorado—beautiful alpine meadows, forested valleys and flat-topped timberline peaks, with camp site on the shore of one of the Island Lakes in the center of this magic back country.

Expedition No. 3—July 18 to July 29—\$172

Same as Expedition No. 1

Expedition No. 4—July 19 to July 26—\$129

Same as Expedition No. 2

Expedition No. 6—July 22 to August 1—\$168

The magnificent Sawtooth Wilderness of Idaho—a wild kingdom of serrated mountains, alpine lakes and pine forests.

Expedition No. 7—August 1 to August 13—\$174

The Maroon Bells-Snowmass Wilderness of Colorado—where the rugged mountain grandeur of the Rockies reaches dramatic heights.

Expedition No. 8—August 5 to August 15—\$168

Same as Expedition No. 6

Expedition No. 9—August 15 to August 27—\$174

Same as Expedition No. 7

Expedition No. 10—August 31 to Sept. 11—\$167

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Diameter growth at the rate of one-quarter to one-half inch a year is general among dominant trees. Furthermore, except for some trouble with a bark beetle, *Ips radiata*, it is nearly free of insect attack.

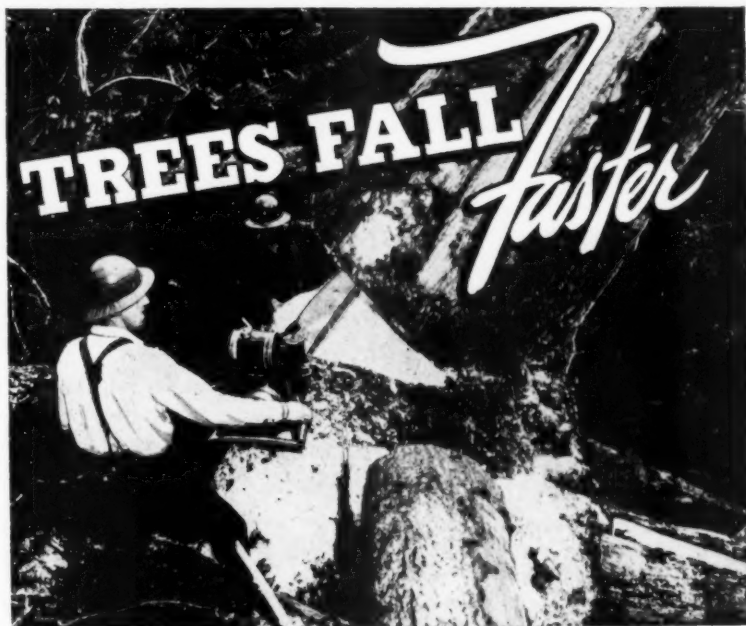
Monterey pine is usually found in pure stands, but on Huckleberry Hill it is mixed with small groves of Bishop pine and Gowen cypress. On Point Lobos and Cypress Point it is associated with Monterey cypress. In many places the picturesque California live oak may be found beneath the stately pines.

A French explorer, La Perouse, who stopped in Monterey in 1786, first collected seed and introduced this pine in Europe, calling it California pine. But the Scotch botanist, David Don, was the first to classify it and give it a scientific name — *Pinus radiata*, or pine with the whorls. David Douglas in another exploration named it *Pinus insignis*, but the first name stuck. The cones are whorled along the branches as the scientific name implies. Monterey pine has deeply furrowed bark and very heavy foliage, with needles growing in clusters of three. Sixty or 70 feet is the average height with a diameter of three or even four feet at maturity, but larger specimens are occasionally found.

As if this were not an exciting enough background for any tree species, there is much more to the story. Late in the 19th century a curious New Zealand sea captain took back some cones to his native land and planted the seeds. Growth was so remarkable that extensive plantings followed. Today many private forestry companies in New Zealand have thousands of acres of land producing insignis pine, as it is called below the equator. It has also been planted in Australia and South Africa with excellent success. Growth is far better in the Southern Hemisphere than it is in California.

In timber quality Monterey pine compares well with other softwoods. It has strength similar to the other hard pines and resists shearing and splitting better than Douglasfir. In workability it is comparable with ponderosa pine. Knots, while present, are usually hard and small.

Although Monterey pine is limited to a few thousand acres of commercial forest land on the California coast it is contributing much toward relieving locally the present lumber shortage. And in making this contribution it is adding another chapter to its already fascinating history.



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CONSERVATION IN CONGRESS

By A. C. Hall

The action of the House Appropriations Committee in drawing up the Interior Department appropriations bill, H.R. 3123, and the subsequent passage of the bill as amended by the House, gives some indication of the tenor of Congress toward large federal appropriations this year. The bill, for a total of \$156,538,513, is \$138,881,907 less than that estimated in the budget, and \$101,362,173 less than the funds appropriated to the department in the current fiscal year. Some slight increases were made on the floor of the House before the passage of the bill, and it is believed that further increases may be made by the Senate which has held hearings on the bill.

Significant reductions were made in the funds for the administration of the Taylor Grazing lands, a budget estimate of \$1,070,360 for salaries and expenses in the field being reduced to \$373,000. Range improvement, fire fighting and leasing funds for the grazing lands remain unchanged from the budget estimate. In reducing the funds for the administration of the grazing lands, the committee expressed a belief that grazing fees should be raised above the eight cents per animal unit month recently made effective.

The estimate of \$170,000 for fire control and suppression in the Interior forests of Alaska was disallowed entirely, the opinion of the committee being that such protection is not justified and that the saving that might result from it would not warrant the expenditure involved.

The committee pared the budget estimate of \$3,000,000 for soil and moisture conservation operations down to \$1,500,000, giving as its reason the fact that the soil conservation program of the Bureau of Land Management has not yet crystallized. It also expressed the hope that a considerable portion of this appropriation will be used for the aerial seed planting program.

A budget estimate of \$1,145,000 for the management of Indian forests and ranges was reduced in the bill to \$1,000,000, but the latter figure is an increase of \$205,872 over the 1947 appropriations.

The National Park Service budget estimate of \$14,555,000 was reduced to a recommended \$10,304,655, the major cut being in programs for

roads, trails and parkways and physical improvements, but this is offset by there being \$17,622,000 of 1947 funds still available for such expenditures in 1948.

The policies of the Department of the Interior and of the Department of Agriculture as regards the management of public lands, particularly those in grazing areas, is under the close scrutiny of the House Public Lands Committee. Hearings have been held at which the government agencies explained their policies of land management and at which western stockmen had an opportunity to voice their opinions of the effects and operation of these policies. It was apparent and openly stated by the stockmen that their aim at this time was not private ownership of the western public ranges, but that they did want greater participation in the planning, policy making and management of the ranges on which their stock graze. It is planned to continue the hearings in the western states this summer. House Resolution 93, authorizing the Public Lands Committee to make investigations into any matter within its jurisdiction was reported favorably from the Rules Committee on April 17.

Hearings also have been held on the Blatnik Bill, H.R. 2642, to safeguard the roadless area in the Quetico-Superior Wilderness in Minnesota. Testimony by all agencies, including The American Forestry Association, was in favor of the passage of this bill which would authorize the Secretary of Agriculture to purchase private lands within the area. Local support of the bill apparently hinges on the retention of the provision for 12 cents an acre payment to the state for the benefit of the local governments in addition to other payments already authorized by law.

Hearings likewise have been held on the Agricultural program with a view to reporting an appropriations bill. Forest Service budget estimates were strongly supported by many conservation agencies and state foresters. Major support centered on increased funds for fire control under the Clarke-McNary Act and extension of aids to small forests owners under the Norris-Doxey program.

H.R. 371, establishing the Theodore Roosevelt National Park in Medora, North Dakota, was passed by

the Senate and became Public Law No. 38 on April 25. This bill had been opposed by the National Park Service and others on the ground that the area does not meet national park standards. A similar bill was vetoed by the President last year.

A sub-committee of the House Public Lands Committee held hearings on the Barrett Bill, H.R. 1330, to abolish the Jackson Hole National Monument in Wyoming. It is likely that a compromise on the issue may be reached by reducing the boundaries of the present monument. Such a modification was suggested by former Governor Miller of Wyoming and is favored by present Governor Hunt. In an attempt to help settle the Jackson Hole controversy, Representative Peterson of Florida introduced H.R. 3035 on April 14 to provide payment to the state of Wyoming for the loss of taxes on federal lands in the Jackson Hole area. It is believed that some provision for payment will be made in the compromise measure.

S. 800, by Senator Cordon of Oregon, to make an additional 10,000,000 available for the construction of access roads to standing timber was

passed by the Senate on May 6 and was referred to the House Committee on Banking and Currency, May 7.

The Capper bill to amend the Plant Quarantine Act to limit the entry of nursery stock from foreign countries and to provide for its inspection with a view to eliminating harmful insect and disease importations was passed by the Senate on April 21 and was referred to the House Committee on Agriculture.

The forest pest control bill, H.R. 1974, introduced by Representative Goff of Idaho was reported favorably, May 13, by the House Committee on Agriculture. This bill provides for cooperation of the federal and state governments in the control of forest insects and diseases on all forest lands. A similar bill, S. 597, introduced by Senator Bushfield of South Dakota, was reported favorably by the Senate Committee on Agriculture and Forestry, May 8.

Senator Murray of Montana introduced S. 1156, on April 23, for himself and for Senators Johnston of South Carolina, Pepper of Florida, Langer of North Dakota and Taylor of Idaho, to establish a Missouri Valley Authority.

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— And Now Television

(From page 257)

canals and can cause poisonous rash.

Throughout the show we used the various media which television makes possible: a studio set, a photograph showing a highly-magnified cross-section of the leaf and another of the stem; photographs of the leaf arrangement and of the plant in its native habitat; and a continuous dialogue. All this in 10 minutes? Yes, but it takes 18 to 20 men to do it. Here is a quotation from Bob Child's statement made last May at the Institute for Education by Radio:

"Another basic difference between television and radio is the much larger staff required by television. Five men can put a radio show 'on the air,' as compared with 18 to 20 needed for television. In radio, it takes only one at the transmitter, one master control operator, one in the studio control room, a producer and an announcer. Our present television staff includes two men at the transmitter; and at the studio, an audio director, microphone boom operator, video director, shading desk operator, projectionist, control room equipment operator, a 'floating' technical supervisor or trouble shooter, a program producer, three cameramen, two 'dollymen,' two light men including one on the control bridge and one on the floor, a floor supervisor, and a stage hand."

And what about the audience? Each performance can be viewed by a dozen or more people at each of the half-dozen television receivers provided right at the studio. Outside a tower with a disc-shaped directional antenna carries the television beam 12 miles by air line to the transmitter high in the Helderbergs. From this 50-foot tower the television wave goes to several hundred receivers in the Albany-Schenectady-Troy area.

To these owners of television sets, the station mails weekly notices of programs that include a tear-out rating card which can be filled out and returned and used to measure the audience appeal of individual programs. Naturally we were pleased when our rating showed up as a tie for second place in the series of "Farm Spotlight" programs produced to date.

Admittedly, we had a very limited audience and we can scarcely claim any return for our efforts—except in experience. But in the writer's opinion, the agencies and educational institutions dealing with forestry or

conservation must anticipate that within five years we shall be using television as the most versatile and powerful instrument for developing new concepts of the practice of forestry.

Last October we returned to the "Farm Spotlight" series and again chose a subject with dramatic appeal. Fay Welch, nationally-known camping authority, and special lecturer at the college, had made a study of the causes of hunting accidents based on newspaper reports. Furthermore, his father was a professional Adirondack guide who early trained his son in the expert handling of firearms. This time our television program began with action showing the careless handling of a shotgun, coupled with the startling facts of hunting casualties brought about by carelessness.

The scene was the interior of a hunting lodge. The script called for dialogue between "father" Fay Welch and his "son" in front of the fireplace. (We soon learned that close-up shots produced the best television pictures and that intimate groupings of not more than three or four people were preferable.) While the son was being trained to avoid self-inflicted injuries, his pal appeared, and from that point the remaining minutes were spent demonstrating how a large percentage of hunting accidents are caused by failing to identify the target accurately, as when a hunting companion mistakes the flash of a white handkerchief for the "flag" of a deer.

With television it was possible to "show" the proper handling of the gun, tripping the trigger while crossing a fence, tips on avoiding accidents when two or more are hunting together.

Apparently showmanship is a key point in presenting a program. This one rated exactly the same as the first, and we were encouraged to venture again on April 2 of this year when Svend Heiberg, associate professor of silviculture, demonstrated tree planting under the title "A Thousand Green Machines Per Acre."

The show began with a rural schoolteacher announcing Arbor Day to the students. The children filed outdoors where Professor Heiberg waited with a mattock and trees.

In common with the theater and in contrast to radio, the entire script must be memorized. On this occasion, to make the memory work easi-

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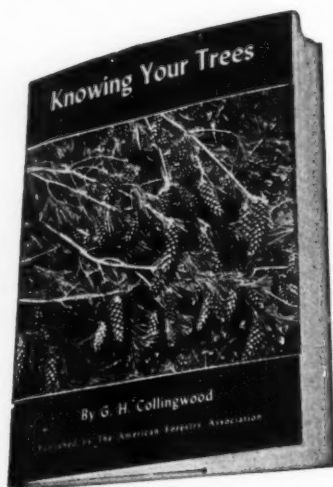
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6-47

er, the children were primed to ask leading questions. The success of the program hinged, as usual in any television program, on a series of action settings, with cameras one, two and three creating interest by wide shots, close-ups, showing the root system of a tree outlined against the palm of the hand, the school children helping to plant, the schoolteacher moving up to ask a question, Professor Heiberg swinging a mattock, and a boy testing the tree after planting.

An immediate criticism of the program was that we had not incorporated motion pictures, but because of the short time, we felt it wiser to concentrate on the proper use of the mattock in planting rather than showing, by motion pictures, how plantations, and eventually full-fledged forests, are produced by the "little green machines." Within six months, we hope to have a longer program, perhaps a half hour. We shall anticipate using motion pictures in this one, meanwhile planning for shots which can be taken during the summer.

At the present time there are 10 television stations in this country on the air at least four hours a week. Three are in New York City and one each in Chicago, Philadelphia, Detroit, St. Louis, Schenectady, Washington and Los Angeles. Other cities expected to have television stations soon are Boston, Buffalo and Cleveland; and by the end of the year it is forecast that 40 stations will be in operation.

Who owns these stations? As might be expected, a variety of interests are backing the television programs. These are principally represented by radio, press and motion picture interests, all of which see enormous possibilities in this new instrument of communication.

Evidence of progress in television planning came recently with the announcement of the American Telephone and Telegraph Company that within two years a cross-country coaxial cable joining Washington and Los Angeles would be the first link in a television network that will eventually make television available to the major population of the country.

Without question, the expansion of television will put new emphasis on the use of motion pictures. This is something which far-sighted conservation agencies influencing public opinion can put in their hat bands for future reference and plan accordingly.

Heroes

(From page 253)

Earl W. Norman in a Washington forest home, Lennon was awakened one night by a desperate scuffle in the one-room house. Instinctively, he called to his friend—but there were only moans from a corner of the room.

Not knowing what was happening, Lennon hurled a boot in the direction of the moans. Then he jumped from his cot, lit a lamp and backed to the wall in horror. A huge bear, weighing at least 400 pounds, had entered the house and now had Norman on the floor, clawing him. His heart pounding furiously, Lennon ran for the nearest weapon—a butcher knife. With this he jabbed the bear, but the blade hardly penetrated its thick hide. So he set out in search for another weapon.

Outside the door he found an ax and returned to the attack. Swinging the weapon with desperate fury, he caught the bear on the back of the neck. The enraged animal raised up quickly and struck him a glancing blow. But Lennon fought back, raining blow after blow on the huge beast. Finally it collapsed and died—and Norman's life was saved.

For his deed Archie G. Lennon's name has been inscribed on the famed honor roll in Pittsburgh, and he won a Bronze Medal and \$1,000.

All over America, woodsmen have seen fellow men in danger — and risked their lives to save them. Many times unheralded but never forgotten, their heroic deeds live on in the Carnegie Hero Fund honor roll. They are truly heroes of civilization.

Form Holly Society

The Holly Society of America was formally organized on April 18 at a meeting of holly raisers and others in Baltimore, Maryland. The objectives of the society are to bring together persons interested in holly and to promote the study of holly culture, protection and use. Officers of the new society are: C. R. Wolf, president, New Jersey Silica Sand Company, Millville, New Jersey; Harry William Dengler, vice-president, extension forester of Maryland, College Park, Maryland; Mr. and Mrs. Charles A. Young, Jr., secretary-treasurers, Baltimore Department of Public Parks and Squares, Baltimore.

Charles A. Young, Baltimore city forester, presided at the meeting.



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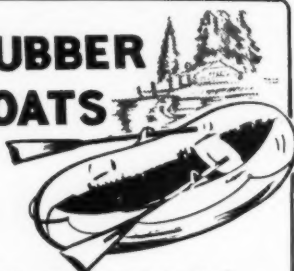
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Farm Forestry Is Fun

(From page 262)

At the risk of sounding "preachy," here are a few do's and don'ts you may find helpful if you now own woodland, or intend to own some in the future.

If you own woodland: Remember, you may sell timber from time to time without cutting all your trees. Your forester will tell you how to do this. A well-managed stand of trees, if large enough, will supply you with game for generations.

Don't let livestock graze in your woods.

If you plan to own woodland: Learn the advantages of owning woodland. Don't take on more than you can manage.

Both federal and state forestry departments issue non-technical publications designed to help you understand

and appreciate trees and sound forestry practices. Ask for these and read them *before* you buy.

Looking back on the first year of our farm forestry experience is now a pleasant pastime for both of us. We've come to understand and appreciate our woodland as a great God-given natural asset, worthy of our best efforts. We have improved our woods, and thereby improved our property. More important, we have learned how to continue this improvement in the future.

We've made some money we didn't expect to make, and that's always pleasant. Last, but certainly not least, we've enjoyed a lot of free, healthy outdoor exercise, and our knowledge of nature has increased tremendously.

As you must have guessed by now, we think farm forestry is fun!

Conservation by Common Consent

(From page 268)

stumpage value of all timber cut. Fire protection and low-priced forest planting stock from the nurseries of the Conservation Department encouraged the planting of the land to timber. So does the continuous educational program carried on by Wisconsin agricultural experts since 1929. Wisconsin now has 236,954 acres in state forests, 1,948,617 in county forests, 151,293 in private forests, and 300 school forests of varying sizes, in addition to 1,357,915 acres in national forests.

One of the chief difficulties with

conservation has been that many landowners are in favor of it in other parts of the country or on other people's land. The land zoning program has stopped some of the most wasteful land use practices known in America. It has made beautiful but unproductive land available for public recreation. It has promoted water conservation. It has encouraged the planting of timber on millions of acres of previously neglected land, and given standing timber better protection from fire. And it has done this by the common consent of interested local citizens.

Shelterbelts Are More Than Trees

(From page 250)

added value to farm property. They have provided protection to wildlife. Experienced hunters know that the best pheasant hunting is in the areas with most belts.

In some areas, shelterbelts have completely altered the landscape. Where once the skyline was unbroken except for buildings or an occasional small patch of trees, there are now many thrifty shelterbelts from 20 to 60 feet high limiting the horizon to only a few miles. The combination of shrubs, conifers and tall growing hardwoods is a definite asset to the appearance of a farming community at any season. They add color and contrast. They dress up the landscape, the farmstead, highways and roads. They give the community an

appearance of permanence—something deeply rooted in the soil.

The real value of the shelterbelts to a region cannot be measured. W. C. Isern of Alden, Kansas, expresses well the philosophy of the solid permanent type of farmer. To him, trees are worthwhile for their own sake. He points out that mass community effort in tree planting on a wide scale would mean much in beautification of the landscape, in the protection to farm homes and other buildings, in the comfort of the people, and in the general well-being of his—the Big Bend—section of the Arkansas River Valley. And this effect, he notes, would accrue not only to the present, but to other generations.

President Truman on Fire Prevention

IN his address before more than 2,000 persons assembled for the President's Conference on Fire Prevention in Washington, D. C., on May 6, President Truman laid special emphasis on the protection of forests from fire.

"Our first concern is for the lives of our people," Mr. Truman said. "Next in importance is the fact that we as a nation cannot continue to ignore the staggering destruction of goods, natural resources, buildings and other property by fire. During the last 12 months fires destroyed more than \$560,000,000 worth of our wealth. The loss for 1947 will be more than three-quarters of a billion dollars unless we can reduce the present rate. No dollar value can ever be placed on the irreplaceable things

which fire destroys. . . . Who can put a dollar value on a burning forest?"

"The fire loss, in lives and property, which occurs annually in our forest and rural areas makes up a highly important part of the annual toll. Such destruction of our precious natural resources is of concern to each of us."

The three-day conference brought leaders from all parts of the nation to plan action against the growing fire menace. State foresters, officers of forestry organizations, and leaders of "keep green" movements, representatives of forest industry joined with experts in every field of fire prevention and control activity to map means of reducing fire occurrence and damage throughout the nation.

Managing Your Woodlands

(From page 270)

panels, leaving sufficient to allow for natural reseedling."

Farm Forester Parker has kept abreast of current markets so that all forest products harvested could be sold advantageously. Without recourse to an adequate market, there is little incentive for a farmer to manage his woodland properly.

Sawlogs constantly are sought by many small sawmills in the county or by the larger mills in the Portland area. The pulp mills in Oregon City provide a ready market for hemlock, white fir and cottonwood, from four-foot peeled bolts to long logs. Much of this material is obtained from thinning operations in farm woodlands, in sizes handled easily by the farmer.

The small logs and bolts harvested in thinnings normally would be crowded out of the stand and wasted. There has been a considerable volume of old growth timber to harvest from these farm woodlands. The stands are composed of a mixture of Douglasfir, white fir, hemlock, western redcedar, cottonwood, alder, maple and ash. Certain areas have white oak, often found in mixture with other species.

The most profitable outlets for immature trees are the telephone and power pole and piling markets. Piling from 55 to 120 feet long bring good returns, and a demand exists for poles in the 40-, 50-, and 60-foot classes. Suppressed trees in the woodlot usually fail to qualify for this demand, however, and if the farmer is not careful he will remove too many

of his potential sawlog trees in filling orders for poles.

By harvesting and selling the smaller suppressed trees for small poles of various kinds, a fair profit often is obtained. Some of these go to hop growers for anchor and trellis poles. Small ones work up well for bean poles. The various pole and piling yards always are in the market for 11-foot poles for car stakes. Piling and posts, used in contact with the earth, require durable wood. Only western redcedar can fill the bill naturally, but the other species are made durable through various wood preservative treatments, many of which increase the life expectancy of Douglasfir to 15 or 20 years.

Most forest growth in Clackamas County is the result of natural seeding. As an aid in securing a fully stocked stand or reforesting a denuded area, young trees often are planted, especially where natural reseedling has not succeeded, or where the farmer desires a different species. Often the farmers plant black locust, Port Orford cedar or cascara. Black locust trees 10 years old are being cut for fence posts. The stumps from which these 10-year-old trees are cut will, if left in the ground, produce new sprouts. If the sturdiest sprout is left, and the others cut off, a new tree will be ready for cutting into fence posts in eight years.

Marshall has a black locust fence on his ranch which has given service for 31 years. The posts are still solid and no decay has developed. Manage-



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ment of the cascara tree, from which medicinal bark is peeled and sold, is a similar procedure. Trees, eight to 10 inches in diameter at the base, should be felled, leaving a six-inch stump. All the tree should be peeled, limbs and all. New sprouts will spring from the stump, one of which should be allowed to grow. Within 10 years another harvest will be taken from the same stump.

All these farm woodland chores take time and a certain amount of skill. They can be done at the convenience of the farmer, however, in off seasons. It is preferable and more profitable for the farmer to do his

own work in his woodlands.

In several sections of Clackamas County the forests have been entirely removed. Some of the stumpland is grown up in hazel brush, poisonoak, salal and fern. Fir seedlings planted in this heavy vegetation have a rough time getting a start. Parker advises the farmer who wants to set this land out in young fir trees to turn a herd of goats into the brush for two or more years. They will thin it down to a point where the fir seedlings will get a start. Then, it is well for the farmer to keep all livestock out of the newly-planted areas, and to watch carefully in a fire prevention program.

Forest Research in Japan

(From page 274)

sputtering, and odoriferously kept Japanese trucks, buses, passenger cars and logging locomotives moving during the war years when the army and navy monopolized all gasoline supplies. This development was copied from German methods. However, the forest products researchers of Japan had to try the German procedures on Japanese charcoal and wood and had to demonstrate that vehicles could be propelled in this manner.

It was a common sight on Tokyo streets and on mountain roads to see trucks or cars, with a straw bale of charcoal lashed to the bumper, come sputtering to a halt. The driver would get out, open the top and, as clouds of steam rose up, proceed calmly to shake out the ashes and glowing coals on the street or highway. He would then load up with more charcoal or wooden blocks, wait a short time for the engine to get into operation, and then by fits and starts, proceed on his way. It was slow and inconvenient, and on hills the logging trucks had difficulty hauling full loads, but the home-front kept things moving on charcoal.

Another contribution toward motor fuel was the development of *shotanya*, or pine-oil, from distillation of pine roots. This again was not original with the Japanese, but had to be adapted from German work. The Society of Japanese Foresters awarded one of its prizes to the forest products chemical research man who took the German findings and successfully modified them to Japanese conditions. Many logging stations and forest headquarters supplemented their motor fuel allotments with this home-made gasoline from their own distillation plants.

There was a careful and systematic search for all possible sources of oil

from tree and plant materials throughout Japan, but none was as successful as the *shotanya* process on pine roots. Extensive searches are also continuing for sources of tannin, essential oils, resins, and medicinal materials.

The Japanese have studied the manufacture of oleo-resin from red pine, but the yield of gum is very low from the primitive methods in use to date. They are more successful in the tapping of sumach, for the making of lacquer. Japanese lacquerware, which can now be found in the homes of many Americans who have served in the Japanese Occupation, consists of carefully shaped sugi or hinoki wood (often other species are used) covered with opaque pigmented lacquer baked to a high glossy finish. Each piece is covered with a number of coats of lacquer, sometimes as many as 35 or 40. The Japanese are justly proud of their ability to make and use lacquer, and are very evasive in answering questions as to formulae and recipes for rendering the sumach sap into the lacquer carrying the numerous pigments.

Related to this work with lacquer, is a research project entitled, "Trial production of souvenirs for Allied Forces." No results of this project were encountered. It is hoped, however, that this research effort had nothing to do with the many knickknacks sold to G.I.'s as examples of Japanese lacquerware and wood-carvings which split and checked badly on drying.

More useful research projects were the unspectacular routine studies in products utilization such as methods in soda pulp manufacture, flame and smoke heated dry kilns, drying of veneer and plywood, adhesive power of

glues, mechanical strength tests of wood, fireproofing, waterproofing, and acidproofing of wood, air-seasoning of lumber, painting tests, and treatment of small timbers. The pulp and paper and the rayon industries have research programs of their own seeking chiefly to copy foreign methods.

There were also studies of various diseases and insect pests, and how to control them. Various longtime studies were conducted on regeneration under coppice system, for fuelwood, and under selection cutting, and of management of bamboo, and of plantations of sugi and hinoki.

Questions are often asked as to the quality of Japanese forestry research. Interviews with research men, examination of publications, and visits to field and laboratory experimental layouts, indicate considerable room for improvement. Contributing little that is original, the Japanese pattern

their experiments closely after foreign work, largely European. They are almost allergic to modern methods of statistical analysis. Sometimes averages are computed on the basis of a very small number of measurements. Such averages are often compared without regard to the variation in the measurements on which they are based.

There appears to be among these research men an academic point of view which does not appreciate the practical side of the problems faced by the forest manager and forest administrator.

As would be expected, a number of Japanese research foresters expressed the desire to visit United States and Australian experiment stations, laboratories and forests. No doubt exposure to such outside influences could help strengthen considerably the Japanese forestry research program.

South Carolina's Dependable Crop

(From page 266)

areas to fast-growing pine would help. Although the government is now spending yearly about 300 million dollars in farm conservation payments, less than one percent is allocated to woods work. Lands planted to pines are wound up to run full speed for the next 50 years. With only small cultural payments involved thereafter and with periodic income beginning after 10 to 15 years, common sense would seem to call for some diversion of conservation funds to such work.

The nine million acres of farm and investment ownerships are no easy nut to crack; however, gratifying progress will result from stepped-up assistance programs. One difficult segment is the estimated million acres of first-rate coastal forest in game and "hobby" estates. Some of these are real timber farms, but frequently forest possibilities are subordinated to quail raising and shooting — to which wealthy northern owners may devote only a few weeks in the year.

Forest industries are estimated to own 1,670,000 acres, half of which was under organized forest management in 1944. Short-sighted policy has not been a stranger to this group, as more than one member now admits. Nevertheless the management trend is pointing sharply upward today.

National forests, 581 thousand acres, and state-owned forests of about 175 thousand acres, are under

well-organized forest management. Public forests are accumulating heavier stands than the average, and should yield proportionately heavier future returns in harvested products.

Ownership of the 11,587,000 acres of commercial forest land is estimated as follows:

Farm (as listed by 1940 Census)	4,863,000 acres
Investments, etc.	3,898,000 "
Forest Industries	1,670,000 "
Other Industries (Power, textile, etc.)	200,000 "
Public	956,000 "

Total public ownership is reported as 655 thousand acres of federal lands, while the state has 301 thousand. However, about half the area credited to state ownership is under lease from two federal agencies. State forests owned in fee simple shrink to about one-half of one percent of the national forest area. There are places in the brush-covered Sandhills, and also scattered over the Piedmont and upper Coastal Plain, where only the exceptional owner would undertake rehabilitation of forests. It is believed that the majority of thinking people approve public forests on lands of this sort.

State leaders feel that the time has come for the state to assume responsibilities regarding some of the lands that need rehabilitation, yet lack stable ownership. As one of the leading lay members of the Forestry Commission says, "After years of struggle we have fire protection on the



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way. The state is helping private owners with forest management. The next big job is to develop state forests where lands are in bad shape." A prominent state agricultural leader points out that state forests can do a rehabilitation job without having the lands locked up permanently in public ownership.

Planting has been a feature of South Carolina forestry. Probably 140 thousand acres have been successfully reforested, putting the state at the top in the southeastern region. However, the forest management branch of the Forestry Commission estimates 1,650,000 acres still in need of planting to pine. Over a million acres of this is unproductive woods. The rest is idle agricultural land. Practically all the planting so far has been on idle cropland, and it is believed that owners will do considerably more.

Ten years ago the South Carolina Commission of Forestry was expending \$75,000 for forestry activities. In 1940 the budget had risen to \$243,000, and by 1945 to \$947,000 (federal funds included in each case). For this relatively poor commonwealth to give this kind of support is evidence of its determination to do its part to encourage private forestry. State-wide fire protection, long sought, is now being set up as result of the Forest Fire Protection Act passed by the 1945 General Assembly. Increased coverage and efficient

cy are expected (See December 1946, issue).

Forest management assistance by the Commission of Forestry and by the state Agricultural Extension Service now covers the state. Twenty-four foresters of the two agencies work at this, one-third of them full time. The war curtailed selective marking service, but it is believed 50 million feet will be marked annually when going full scale again. A charge is made for marking. Information services by the two agencies, which operate on a closely coordinated plan, are at a high level.

If one delves into the long and distinguished history of South Carolina, he will find an unusual number of far-sighted leaders. One good example of their economic foresight may be seen in the mountains. There are the cuts, fills, and tunnels of the unfinished Blue Ridge Railroad, started before but never resumed after the war between the states. A hundred years ago South Carolina leaders saw that agriculture was not enough, and so that state undertook to put a railroad across the mountains to connect with the West. Charleston was envisioned as a great port like New York. Earlier, the state had put the first railroad into operation. Undoubtedly there is a heritage of this sort of looking ahead. With this thought in mind, it may be taken as significant that the people are giving considerable attention to their forest lands.

AUTHORS

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THE AMERICAN FOREST FIRE MEDAL FOR HEROISM



Henry B. Rieseberg

Your Opportunity To Pay Tribute To Fire Heroes

FOREST fire fighting in this country is the most arduous and hazardous task which a forester, or a forest protective employee is ever called on to perform. Not only may an individual's life be endangered but oftentimes responsibility falls upon him for hundreds of thousands of dollars' worth of public resources or property as well as for the safety and lives of other fire fighters. Because of this, fire fighters are often called on to display in the highest degree qualities of courage, judgment, quick thinking and coolness. These qualities heretofore have been formally recognized merely by letters of appreciation and commendation from those higher in authority. Now, however, outstanding cases of personal heroism in fire fighting are recognized by the award of a bronze medal known as the American Forest Fire Medal.

PURPOSE

The reasons for such an award are (1) to show public appreciation to individuals for outstanding acts under unusual stress or difficulty on forest fires which exhibit the highest degree of personal courage, judgment and initiative in fighting forest fires anywhere in the United States, Canada, or Mexico, and (2) to stimulate and maintain morale of all persons engaged in or responsible for protection of forests from fire.

ELIGIBILITY

Any person may be eligible for the Award after satisfactory evidence is presented that he has performed an act worthy of consideration for such an award within the boundaries of the United States, Canada, or Mexico.

EVIDENCE

Evidence of such acts of heroism or bravery, judgment, initiative, alertness and coolness on an actual forest fire shall consist of sworn statements from at least two eye-witnesses of the act, or from persons personally familiar with the entire circumstances of the act. The award may be posthumous.

BOARD OF AWARD

A group of not less than 3 nor more than 6 persons shall constitute a Board of Award to pass on all applications, evidence and proof of individuals recommended for the Award. A favorable vote of not less than 3 members shall be necessary for any award and this vote shall be unanimous as to all members voting. The Board at present consists of a representative of The American Forestry Association, the Charles Lathrop Pack Forestry Foundation, the Society of American Foresters, the Association of State Foresters, the American Forest Products Industries, and the Canadian Society of Forest Engineers.

The Board shall conduct its deliberations by correspondence or at such meetings as it shall consider necessary. Individuals and organizations familiar with cases believed to deserve recognition are urged to submit their reports to The American Forest Fire Medal Board, 919 17th Street, N. W., Washington 6, D. C.

ESTABLISHMENT OF FIRE AWARD FUND

In order to establish this Award on a permanent basis, a fund of not less than \$3,000 was considered necessary. Contributions totaling \$2,910 have been received. Further assistance in establishing this fund is hereby solicited. It is believed that foresters, forestry, park, and all forest protective associations, as well as conservation and wildlife groups will welcome the establishment of such an Award. Contributions should be sent to:

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